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# Index

## VOLUME FORTY-ONE

## THE JOURNAL

## of the

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# CARE OF THE NEWBORN* **

Stewart H. Clifford, M. D.,† Boston, Massachusetts

For many years neonatal mortality rates resisted all efforts at reduction. It has only been during the past fifteen years that the resistance of neonatal mortality has been broken and the rate has fallen from 31 to 21 deaths per 1000 live births. It would be impossible to enumerate all the factors that have effected this reduction in neonatal mortality. However, the rapid shifting of the scene of childbirth from the home to the hospital has been a most important factor. In both New York and Massachusetts 96 per cent of all births took place in hospitals last year. While the over-all picture has definitely improved, the shift from home to the hospital has not been an unmixed blessing but has of itself created some new problems that will be considered later in this discussion.

## Prenatal Prophylaxis

The health and nutrition of the mother from the time of conception on may exert a direct influence on the developing embryo and fetus. The classic animal experiments of Warkany[1] have demonstrated that maternal diets deficient in either vitamins A, B or D during the breeding period and the following fourteen days will produce a high incidence of malformation in the young, each vitamin lack producing a different and characteristic type of abnormality. Burke, Beal, Kirkwood and Stuart[2] analyzed the diets of 216 women observed throughout their pregnancy and found in the 36 women on a poor diet 8 infants with congenital anomalies while but one occurred in the group of 31 mothers on good diet.

Infection due to the Rubella virus,[3] *occurring early in pregnancy,* has been found to cause congenital malformations in the newborn such as congenital cataracts and heart disease, deaf mutism, mongolian idiocy, microcephaly, hydrocephaly and mental retardation.

Ingalls[4] contends that mongolism is the result of injury to the embryo between the sixth and ninth weeks of life. He believes that agents responsible for this injury include hemorrhage, threatened abortion, pathologic abnormalities of the uterus and certain acute infections.

Ingalls reminds us that forty years ago Mall[5] stressed the importance of faulty implantation of a normal ova in the production of a pathologic embryo. At the same time Stockard[6] concluded that two main mechanisms were involved in abnormal development. In one the abnormality was of germinal origin producing sports such as albinism, certain legless condi-

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tions and polydactyly. In the other, true monsters arose from normal ova developing under abnormal conditions or under unusual circumstances.

A number of studies have been made on the influence of prenatal factors on prematurity. Ebbs, Tisdall and Scott[7] found the incidence of miscarriages, premature births and stillbirths to be greater in the group of women on poor diets. Burke, Beal, Kirkwood and Stuart[8] found all stillborn, but one, most infants with marked congenital defects, all premature and all functionally immature infants in their study were born to mothers whose diets during pregnancy had been inadequate.

Stuart[9] concludes that there is evidence suggesting that more abortions, stillbirths and premature births result from pregnancies during which the mother had ingested diets low in protein.

Brown, Lyon and Anderson[10] in a series of studies have found the incidence of prematurity significantly increased by maternal illness, severe toxemia, eclampsia, mild bleeding, placenta previa, premature separation of the placenta, acute infections and in chronic disorders of pregnancy.

It is thus apparent that many of the problems encountered in the newborn may be the aftermath of prenatal influences. Studies in this new field of prenatal prophylaxis should bring rich rewards both in reducing the incidence of stillbirths, premature births and congenital abnormalities and in improving the quality of the newborn infant at birth.

## Natal Prophylaxis

*The present methods of safeguarding the baby during the process of being born represent one of the greatest achievements of modern obstetrics.* The major dangers from which the infant must be protected result from trauma and anoxia.

Serious traumatic injury to the infant during delivery is now markedly reduced. One important milestone in the elimination of traumatic injury was the substitution of physiologically sound pressure from above for traction from below. Almost overnight brachial palsies and cord transections disappeared and gross intracranial hemorrhages became exceedingly rare. Another important step was safe maternal analgesia, safe for baby as well as mother. Because of the analgesia the mother was allowed to proceed through her labor without interference and the incidence of high and mid forceps extractions also practically disappeared. The third important milestone in the elimination of traumatic injury was the introduction of X-ray pelvimetry and the following of the progress of doubtful cases by serial X-ray examination. It is possible, but not proven, that the maternal administration of vitamin K during labor may have reduced the amount of intracranial bleeding.

Protection of the infant from the devastating effects of anoxemia is one of the major problems with which we are confronted today. In our clinic 58 per cent of the deaths in our live born infants, full term and premature, are the result of anoxia. There are to be sure, many complications of pregnancy in which serious anoxia is unavoidable and beyond present methods of control. There are some types of anoxia that are completely preventable. The use of high concentrations of nitrous oxide or of cyclopropane during labor will inevitably produce severe fetal anoxia. The practice of delaying the birth of the head by direct or indirect pressure to the perineum with or without deep maternal anesthesia is indefensible and extemely dangerous. It is frequently a tragedy that the baby involved in such a procedure survives but with gross neurological damage.

## Neonatal Prophylaxis

Hospitals have assumed a tremendous responsibility in attempting to provide care for all the newborn infants in the nation. The considerable confusion that surrounds the problem is due to a number of factors: the speed at which the shift from home to hospital took place; the shortage of hospital and nursery beds; the increased birth rate; the demand for private physician care and for private and semiprivate rather than ward accommodations; the shortage of nursing personnel; the problem of increasing costs and unbalanced budgets; and the uncoördinated attempts by the overlapping interested groups of doctors, nurses, administrators and public health authorities to offer independent solutions for the dilemma.

The position of the public health authorities in relation to the care of the newborn in hospitals is clear. They must represent and protect the interests of the general public by establishing, after consultation with all interested groups, minimum standards and regulations for the hospital care of newborn infants as a basis for the yearly licensing of such obstetric units. They must make sufficiently frequent personnel inspections to satisfy themselves that minimum requirements are being continuously met.

The hospitals themselves should not be content with minimum standards but should strive at all times towards the ideal care for their babies. The committee on Fetus and Newborn of the American Academy of Pediatrics has State Committees on Fetus and Newborn organizied in forty-seven states, four Canadian provinces and Hawaii and each committee is anxious to coöperate with any hospital group in helping to solve their individual nursery problems.

Any hospital seeking to organize and improve its newborn service can obtain valuable assistance from the manual of the American Academy of Pediatrics on "Standards and Recommendations for Hospital

Care of Newborn Infants — Full Term and Premature." This publication can be obtained for 50 cents from Clifford G. Grulee, M. D., Secretary, American Academy of Pediatrics, 636 Church Street, Evanston, Illinois. The Children's Bureau also has material available on plans for hospital milk rooms and nurseries.

### Diseases of the Newborn

The major causes of morbidity and mortality in newborn infants, full term and premature, are relatively few—anoxic injuries, traumatic injuries, infections, congenital defects and erythroblastosis. It is of great practical importance that the vast majority of these conditions can be recognized within the first 48 hours of life. It would be highly desirable, therefore, if all newborn infants could be closely observed and examined by specially trained nurses and pediatricians, if possible in a special nursery, for the first 24 to 48 hours of life before being distributed to their regular nurseries.

By all standards the most important cause of newborn morbidity and mortality is anoxic injury that alone accounts for nearly 60 per cent of our mortality. Anoxia[11] produces progressively congestion, edema, hemorrhage and necrosis in any or every organ and tissue of the body. The combinations of clinical symptoms that may result are almost unlimited. The only treatment that will stop the vicious cycle of anoxic injury is the administration of oxygen. We immediately place many newborn infants in an atmosphere of 50 to 60 per cent oxygen as a prophylactic measure even before clinical symptoms have become evident. We undoubtedly, use more oxygen than is necessary but we believe we have thus prevented the occurrence or minimized the extent of dangerous complications in an unknown number of infants. All prematurely born infants are routinely placed in an oxygen bed for at least 24 hours, all babies with erythroblastosis severe enough to require treatment and all babies with atelectasis are kept in oxygen for four or five days. All babies with a history of fetal distress and all who have required resuscitation are automatically placed in oxygen.

The generalized edema that develops in both full term and premature infants as the result of anoxia is a very striking finding. It may be a fatal error to start giving fluids too early to such infants in the presence of edema. The added fluid increases the existing edema and may produce serious cerebral and pulmonary complications. It is our fixed policy to give no fluid to premature or full term infants in the presence of edema. In rare instances a small premature infant may receive nothing for as long as four or five days. This principle of managing edema was postulated on clinical grounds and has been associated with a further lowering of our premature infant mortality to 16 per cent. The work of Smith[12] has now given chemical support to this thesis.

Infants with intracranial bleeding[13] whether due to anoxia or trauma or both are kept in oxygen, given nothing by mouth for several days and treated by repeated lumbar punctures until the spinal fluid is practically normal.

The birth of erythroblastotic infants is forecast weeks early by the determination of anti Rh titres in mothers possessing a suggestive history and Rh setup. When obstetrically advisable many of these babies are delivered several weeks before full maturity. Under these conditions the infant's cord blood is immediately studied for Rh type and if circulating antibodies are demonstrated the infant receives an immediate replacement transfusion with Rh negative blood. Under this routine the mortality from erythroblastosis has fallen from 40 to 10 per cent.[14]

We have an increasing obligation to diagnose certain congenital defects early in the newborn period since an increasing number can be cured by prompt surgery. Only a few years ago all babies with a tracheoesophageal fistula died — today 8 out of 10 should be completely repaired by surgery.[15] Every infant exhibiting an unusual amount of oral mucus immediately after birth should be suspected of having this condition until proven otherwise. The diagnosis is made by demonstrating a blind esophageal pouch through passing a stiff catheter into the esophagus and taking an X-ray with the catheter in place.

One in every four infants with congenital absence of the bile ducts has a condition that can be completely cured by surgery.[15] We must remember that jaundice may be very slight in this condition throughout the newborn period. Every patient with even mild jaundice must be considered as a potential congenital obliteration of the bile ducts until proven to the contrary.

Congenital obstruction of the intestine is a relatively common condition in the newborn—including premature infants. Every case of vomiting in the newborn, especially if it begins immediately after birth, must be considered obstruction until disproved. The obstruction may be intrinsic, if multiple may be inoperable. It may be due to meconium ileus and require surgery or may be a meconium plug in the rectum or descending colon and respond dramatically to a simple enema. It may be due to constriction by short bands of mesentery associated with malrotation of the cecum or be due to a volvulus, intussusception, pyloric stenosis, or to a diaphragmatic hernia. We have just seen an obstruction in a 3-pound premature infant due to an annular pancreas successfully operated upon on the 6th day of life. The common symptom of obstructions is vomiting and the diagnosis can frequently be made by a simple flat X-ray plate of the abdomen.

### Infection

We must never forget the fact that both premature and full term infants may develop all the types of infection seen in older infants. They are particularly susceptible to infections that may enter through the umbilical vessels. However, at this time we are particularly concerned with a relatively new type of infection that has appeared secondary to the concentration of large numbers of babies in common nurseries. Epidemic diarrhea of the newborn has become a public health problem only during the past fifteen years.

A review of the literature on this condition[16] warrants the conclusion that it is not a disease entity but rather a symptoms complex that may be caused by a variety of organisms and by at least one and possibly other viruses. The conclusion was reached that many epidemics were caused by glaring errors in nursery techniques and by faulty epidemiologic management of the first cases of diarrhea that appear. It was suggested that simple sound nursery practice could prevent practically every epidemic of diarrhea even in crowded nurseries.

The New York State Public Health Council on January 16, 1948, added a new regulation (35) to its Sanitary Code designed to control diarrheal diseases of the newborn in newborn nurseries. These regulations were arrived at after consultation with the New York State Medical Society, many individuals and organizations and were written to agree in principle with the recommendations of the Children's Bureau and the American Academy of Pediatrics Committee on Fetus and Newborn.

The State of New York Department of Health summarizes the requirements of Regulation 35 as follows:—

a. Terminal sterilization of formulas with nipple and cap in place.
b. Segregation of normal newborn and premature infants from sick infants or older children, and prohibition of nursing care common to both groups.
c. Isolation for at least one week (and preferably for the entire hospital stay of infants born outside the hospital before admitting them to the nursery for infants born in the hospital.
d. Exclusion of infants born to mothers who have or develop respiratory or diarrheal illness from the nurseries for normal newborn or premature infants. It is recommended that patients be questioned on admission and daily thereafter as to recent or developing illness.
e. Liberal use of the "suspect" nursery. Authority should be granted to all nurses to place infants in a "suspect" nursery without delay, and nurses should be commended for their alertness.
f. Prompt isolation away from the nursery area and personnel of infants diagnosed as being infectious.
g. Individual care of infants in their bassinets.
h. Strict enforcement of handwashing by all personnel before and after coming in contact with any infant.
i. Elimination of common bath tables.
j. Elimination of common dressing tables.

It also recommends the following:

a. Examination and treatment of infants in their bassinets to the greatest possible extent.
b. Elimination of hand dips.
c. Elimination of breast cleansing practices which permit spread of infection from one mother to another.
d. Every effort should be made to encourage an attitude of awareness on the part of the nursery personnel of the potential danger of an infant with loose stools to other infants and to the operation and community standing of the hospital from the resultant outbreaks. Diarrhea in newborn infants is reportable if it occurs in infants twenty-nine days of age or less, or below 2500 grams (5½ pounds) in weight. There should be a centralized and automatic system of reporting from each hospital with emphasis on frank over-reporting rather than the concealment which has led to disaster in some hospitals.

A similar program was proposed, but not made mandatory, by the Massachusetts Department of Public Health at a series of conferences throughout the Commonwealth in June, 1947. Dr. Roy F. Feemster, Director of the Division of Communicable Diseases, has given me permission to report the amazing results of these conferences. In the period from June, 1946, to June, 1947, the Department of Public Health was forced to close the newborn nurseries of 9 maternity hospitals because of outbreaks of epidemic diarrhea. All of these outbreaks were serious with fatalities in each. From June, 1947, to April, 1948, there was not a single epidemic of newborn diarrhea in the State. The Department was called in by 11 hospitals with isolated cases of newborn diarrhea, no nursery was closed and no deaths occurred in any of the reported cases of diarrhea.

### Care of the Premature Infant

Care of the prematurely born infant is the major problem of the neonatal period. Every hospital can anticipate that 5 to 6 per cent of their expected births

will be infants weighing 25 grams or less and that from this small group will come 60 per cent of their newborn mortality.

The Children's Bureau[17] has been a leader in efforts to improve the care of premature infants and is ever ready to assist state and local groups in their problems. The previously referred to publication by the American Academy of Pediatrics contains standards and recommendations for the hosptial care of premature infants. Since 1935, the Bureau has had the responsibility of administering grants-in-aid to States for maternal and child health under the Social Security Act. The maternal and child health fund available for State grants amounts to 11,000,000 per year, half of which goes to states in proportion to their number of live births and must be matched dollar for dollar from state funds. To receive its share a State must submit a plan outlining its proposed program and indicating how it will meet certain requirements of the act. Forty-four (44) states have some activity in relation to premature infants financed from maternal and child health funds. At present 7 states have premature centers now in operation and 6 more states are in the process of starting such centers. Most of the states concentrate on 1, 2 or 3 good centers to which prematures are brought by ambulance.

The details of organizing, equipping and operating a premature nursery are beyond the limits of this discussion and may be found in the Academy's manual or in the pamphlet published by the State of Illinois.

Methods to protect the premature infant from infection deserve some consideration. If we grant that all premature infants at the moment of birth are free from infection it is a striking fact that in some nurseries infection of premature infants, usually accompanied by diarrhea, is virtually unknown while in other nurseries it is a constant major problem. It is my strong conviction from years of experience with the problem that premature infants born in a hospital devoted exclusively to obstetrics, where the medical and nursing staff have no contact with infected general hospital patients and no contact with other doctors and nurses caring for such patients, are peculiarly free from infection with or without diarrhea. Premature infants born in the obstetric ward of a general hospital even when cared for in a separate nursery are prone to infection and diarrhea. Premature infants transported to a premature nursery set up in connection with a general pediatric hospital are particularly susceptible to infection and diarrhea. In our own experience the incidence of infection and diarrhea has been sharply curtailed—but not eliminated—in our premature nursery operated as part of a general infants' hospital when each premature infant is kept strictly isolated in a Chappel Bed.

As a result of the above experience I recommend that premature centers be located (1) in pure obstetric hospitals; (2) in an independent building widely separated from a general hospital with a completely independent staff; (3) if in connection with a general hospital—as far away from the children's and infants' wards as physically possible and equipped so that each infant can be kept and cared for in its own air-conditioned unit throughout its entire stay.

## Cultivation of a Normal Mother-Infant Relationship

McLendon[18] has summarized that the cultivation of a normal mother-infant relationship presumes (a) breast feeding; (b) observation by the mother of her newborn child's development; (c) partial care of her newborn infant commensurate with her physical ability; (d) the consequent accumulation of knowledge of her infant's behavior characteristics, particularly in connection with hunger; and (e) confidence in her ability to interpret behavior expressions and to handle them properly.

Macneil[19] points out that the *place* of birth has a definite relationship to breast-feeding. In Detroit, the percentage of breast-fed babies varied from 5 to 6 per cent in one hospital to 69 per cent in another hospital. In Philadelphia, a survey in two hospitals revealed a ratio of 24.6 per cent to 83.3 per cent. We all know from our own experience that such discrepancies between hospitals do exist.

Aldrich[20] has summarized the advantages of breast milk as a specific food and the advantages of breast feeding as a technic in child care. In connection with the latter he points out that teachers and laymen interested in the emotional problem of children, psychologists, psychiatrists and pediatricians interested in growth and development all emphasize that breast feeding provides a greater feeling of security to the baby. Through nursing at the breast the baby may gain a feeling of physical continuity with his mother which as he progresses may lead to the feeling of "belongingness" considered by many psychiatrists to be the first step in normal mother-child relationship. The mother herself may benefit physiologically and psychologically through thus demonstrating her real importance to the infant.

The mother must be "sold" on the idea of wanting to nurse her infant if possible during the prenatal period. Many obstetricians begin this process of education at the first prenatal visit. We all know how futile it is to try to convince a young mother she should nurse her baby if her mind has been made up to the contrary. Aldrich states that many psychiatrists consider that if a mother actively rejects the idea of nursing, it probably is unwise to urge it.

Our obstetric department, psychiatric consultant

and nursing school are experimenting with prenatal clinics on the psychological preparation of the patient for childbirth in which the importance of future breast feeding is not neglected. It is too early to quote results, but the number of our infants completely breast fed on discharge has risen to above 50 per cent.

We need real help in reducing the number of breast feeding failures in willing mothers. Macneil[19] gives an excellent consideration of this problem. He considers some nipples to be caused by the infant's efforts to obtain milk from an obstructed channel and the obstruction will persist unless the tension within the breast is lessened. When the secreting cuboidal cells become flattened by milk pressure milk production stops. Waller[21] has shown that the careful and judicial use of stilbestrol in the early stages of increased milk tension will relieve the pressure and inhibit the onset of the edema, which becomes the obstructing factor. Waller also claims that the prenatal removal of colostrum through manual expression, by the instructed expectant mother, from about the seventh month of pregnancy on, will facilitate the passage of milk through the breasts and lessen the hazard of engorgement. Macneil advises the injured nipples be treated by the early application of hypertonic compresses to painful nipples and the protection of the injured nipples by a soft rubber conforming breast shield until the injury is healed.

All recent authors agree that the "rooming-in" system of infant care and "demand feeding" will contribute materially to successful breast feeding as well as satisfy the other postulates McLendon has laid down for the cultivation of a normal mother-child relationship.

A four bed "rooming-in" unit has been in successful operation at the New Haven Hospital[22] for over a year. Montgomery[23] has used the "rooming-in" system for a number of his private patients in single rooms with excellent results. In both of these groups the mothers were highly selected.

In our private wing the "rooming-in" system has been available to mothers scheduled for single rooms for over a year. To date twenty patients have elected this service with but one failure. There were nearly 3000 births on the private service during this period which does not indicate a very great demand. However, more interest in the proposition is evident at this time due to wide publicity and accelerating interest on the part of our obstetricians. I have no idea how large a proportion of the child-bearing population would elect this system if offered. Its growth like breast feeding will depend on prenatal preparation.

On our wards we plan a modification of the "rooming-in" system along the lines of Barnett's[24] experience at Los Alamos. We propose to keep the babies in the nursery at night but have the bassinetts at the mothers' bedside for the entire day, excepting the general visiting hours. In so far as possible the mothers will take complete charge of their babies under expert nursing supervision.

## Summary and Conclusions

The neonatal period still contributes over 60 per cent of deaths that occur during the first year of life—despite the fall in neonatal mortality from 31 to 21 per 1000 live births in the past 15 years.

Modern care of the newborn is concerned with attention to factors that may operate before and during birth as well as in the neonatal period. The health and nutrition of the mother from conception on may effect the embryo and fetus and be responsible for congenital malformations, abortions, stillbirths and premature births.

Modern obstetric management protects the infant from traumatic injury during delivery but the injurious effects of anoxemia, responsible for 58 per cent of liveborn infant deaths, are far from being controlled.

The protection and care of the newborn infants in this country has been almost completely entrusted to our hospitals. Many groups are coöperating to establish standards and recommendations for the hospital care of full term and premature infants.

The major causes of disease in the newborn are anoxic injuries, traumatic injuries, infections, congenital defects and erythroblastosis. Some anoxic injury can be arrested or minimized through the prophylactic use of oxygen. When the anoxic injury is accompanied by generalized edema the administration of fluid is contraindicated. The mortality due to erythroblastosis fetalis has fallen as the result of early delivery in indicated cases with immediate replacement transfusion. Many congenital malformations; tracheo-esophageal fistulae; absence of the bile ducts; various type of intestinal obstruction; and diaphragmatic hernias now have an excellent chance of being cured by surgery if promptly diagnosed. There is good reason to believe that epidemic diarrhea of the newborn can be eliminated through improved nursery technique and the application of simple epidemologic principles.

The prematurely born infant is responsible for 60 per cent of the neonatal mortality. Prenatal prophylaxis may reduce the number of premature infants born. Standards and recommendations are available to improve the care of these infants in premature nurseries. A major problem remains — the protection of the premature infant from infection during his nursery stay.

While the infant is in the hospital every effort

*Continued on page 16*

# PRESENT-DAY TREATMENT OF SCHIZOPHRENIA*

MATTHIAS MARQUARDT, M. D., Augusta State Hospital, Augusta, Maine

Doctors tend to enjoy talking about their acute surgical and medical cases, they like to discuss their chronic cases in the hope of finding one more helpful hint for treating them. When we find it necessary to discuss our aged or our mental patients we almost habitually assume an attitude of pessimism and discouragement. We who are chiefly concerned with the State Hospital Practice of Medicine begin our diagnostic and therapeutic approach of the Schizophrene with a similar pessimism, but lately have developed a kind of optimistic pessimism which permits us to view schizophrenia with the pessimism of the patient who tells the doctor that there is nothing he can do for him and the optimism of the physician-priest who does something for him by the beneficent use of "the healing word that was made flesh."

Our civilization is based on paradoxical theories and is maintained by paradoxical practices, therefore schismic thought and speech have become a necessary device with which we influence our fellowmen. When it becomes difficult for some of us to adjust ourselves successfully to some of these paradoxical patterns of social systems, we tend to develop attitudes of acceptance or rejection, feelings of inferiority or superiority, which may lead to schismic, schizoid, and lastly to schizophrenic thought processes and behavior patterns which finally need to be treated as a more or less serious social problem.

Schizophrenia today enjoys a greater degree of public and professional interest than any of the other behavior disorders whose care and treatment usually require institutionalization. The reasons for this attention are fourfold. Schizophrenic disorders are of common occurrence, particularly in adolescence and early adulthood. The prognosis is grave so far as social recovery is concerned. With standard routine state hospital care, namely good nursing, occupational therapy, and social service, the remission rate is about 30%. With competent therapy available which is efficiently administered the chances for recovery improve perhaps 5 to 10%. Schizophrenic patients constitute 20% of first admissions in psychiatric hospitals, and 50% of their permanent population. They come to us early and stay with us late, very late. Interest in schizophrenic disorders has been greatly stimulated by the introduction of various forms of so-called shock therapies, insulin coma, metrazol and electro-shock, as developed during the past ten or fifteen years. Another source of lay and professional interest in schizophrenia lies in the fact that these disorders exhibit a richness and variagation of behavior pathology not equalled by any of the other behavior disorders.

It was Kraepelin who brought together to four types the behavior patterns previously known under the term dementia praecox; namely, dementia praecox simplex, hebephrenia, catatonia, and paranoia. One edition of his book gives eleven subtypes, but this proved too unwieldy and was not widely accepted.

Dementia praecox simplex shows a slowly but progressively decreasing effectiveness in meeting social demands during adolescence and early adulthood. These people drift into indifference and apathy without developing conspicuous emotional outbursts or delusional or hallucinatory behavior patterns.

The hebephrenic sub-group includes persons who show inappropriate giggling, smiling, or laughing, queer grimacing, odd mannerisms, delusional and hallucinatory activities. There is often silly childish behavior with untidiness and incontinence.

Dementia praecox catatonica had been described by Kahlbaum as a degenerative disease of the central nervous system; to date this contention has not been upheld. The catatonic patient's behavior pattern is dominated by motility disorders, excitement, or stupor, overtalkativeness or mutism, resistive behavior or catalepsy, symbolic gesturing, grimacing, and stereotyped repetitive activities.

To the paranoid type of dementia praecox belong the large group of persons whose behavior is dominated by delusions, usually of hostile aggressive nature. Their behavior is generally unpredictable, and is often controlled by hallucinations of sight and hearing. The delusions are usually persecutory in character, but may also be grandiose, ecstatic, mystical or hypochondrial. They are never well organized or systematized. They most closely resemble normal people under stress.

Neither the term dementia praecox nor the four subdivisions have proved entirely satisfactory, nor were the organicists able to prove conclusively dementia praecox or schizophrenia an organic brain disease, nor were the functionalists able to prove that it is due entirely to mental, i.e. intellectual causative factors. At present it seems that the common sense attitude prevails; namely, that mental illness, like mental health, presents both physiogenic and psychogenic features just as all human behavior patterns can be said to be determined or conditioned by both inheritance and environment, not by either alone. At

* Read before the Kennebec County Medical Association, December 8, 1949.

the present time there is an accumulating body of evidence that would seem to indicate that schizophrenes are unable physiologically to respond adequately to physiological stress and that this situation may be associated with cortical adrenal deficiency of some kind.

Schizophrenic disorders most commonly evolve from a series of unsuccessful attempts to cope with situations peculiar to early and approaching biosocial maturity; the average age of hospitalization is twenty-six years. They are characterized by an almost overwhelming multiplicity of symptoms. It is the complexity and changeability of the schizophrenic syndrome which constitutes the most important challenge to the pathologist and the therapist.

The persecuted schizophrenic person tends to assume a predominantly resentful and hostile attitude toward the social group in which he lives. He may show unexpected assault, panic reactions, headlong flight, attempts at suicide or homicide, or make insistent demands upon the authorities for protection for himself and punishment for those whom he thinks or claims persecute him. The grandiose schizophrene often claims to be and plays the role of a high political, religious, military, business leader, famous inventor, author, poet, painter, industrialist, labor leader, landowner, or a famous or infamous religious person or divine or satanic being. The self-punitive schizophrene directs his hostility toward himself and is apt to mutilate or torture himself in peculiar ways. In various ways the individual and the society in which he lives suffer by reason of his psychopathy.

According to the Bleuler-Meyerian conception, schizophrenia presents primary and secondary signs. Symptoms described by Kraepelin, such as autism, delusions, illusions of memeory, some hallucinations, negativism, stereotypies, mannerisms and most catatonic signs, are secondary in nature.

Primary signs are shown in certain disorders of affectivity and in associations, such as a tendency to work alone rather than in groups, outburtss of inadequate affective reactions, unprovoked outbursts of laughing or crying, spontaneous temperamental disturbances of various sorts.

Among laboratory findings reported are: High sugar curve during stupor, decreased blood coagulation time, prolonged hyperglycemia and diminution of inorganic phosphate in the blood plasma, polyglandular symptoms, "dropped" heart, disordered gastrointestinal motor function, lagging of neurocirculatory "return" after exercise, and others.

The psychic mechanisms are most clearly described in the paranoid forms of schizophrenia. A working man, for instance, is confronted with the necessity to earn more wages. He begins by thinking that he is worth more than he is getting. He makes excessive demands, accuses the foreman of favoritism, or his fellow workers of working against him, disliking him, having it in for him, begrudging him a promotion, etc. Instead of looking for some shortcoming within himself he projects his conflicts onto others and into his environment. All these feelings and sentiments can and often do occur in normal persons under stress. In a person ill with this affliction there develop delusions of persecution and he is likely to act on them. While a healthy person believes in what he wishes, the person suffering with schizophrenia acts in the conviction that what he wishes to be already is real, that he is what he says he is or claims to be. Delusions of grandeur develop which may cause the person to claim to be a famous or infamous person of history, and often act accordingly.

The most important variation from normal thinking habits present themselves as aberrations in the higher spheres of intellectual activity such as impairment of thinking, reasoning, and judgment. The Bleuler claim holds that schizophrenic thinking is dependent not only on psychic influences, i.e., it can have physical origins. Schizophrenic illness of particularly severe nature shows features which are usually classed as physical, such as raised and lowered temperature, albuminuria, metabolic disturbances, gnashing of teeth, fits of cramps and of fainting, temporary paresis of limbs and of speech, pupillary disturbances, greatly increased idiomuscular reactions, vasomotor disturbances, edema, somnolence, disturbance of the chemistry of the body, confusion, delirium, stupor, convulsive reactions. Many of these reactions serve as indicators of the existence of brain lesions which express themselves as psychic manifestations. In chronic cases histologic proof has been found. Improvements up to what is practically a recovery do not contradict the diagnosis of schizophrenia.

Proper treatment, according to Bleuler, is possible only if it is known who is accessible to therapeutic measures and at what time. In acute cases we confine ourselves to expectant treatment until the physical processes take a turn for the better. Only then do we try to bring the patient back to reality. If he is left to himself there is great danger that he will withdraw within himself and lose touch with the outside world.

Proceeding on this theory physicians active in various specialties have tried, in their various fields, by the trial and error method, to discover ways and means of rehabilitating as many schizophrenes as possible to their homes and to society.

In 1937, Dr. Manfred Sakel reported in the Bulletin of the New York Academy of Medicine that for three and a half years he had been treating alcoholics and schizophrenics by hypoglycemic coma. During 1935, several American physicians, especially Dr. D. E. Cameron, had begun to treat patients at Wor-

cester, Bellevue, and other hospitals by insulin induced hypoglycemia and other methods. Drs. Müller and Braunmühl of Europe also had tried and accepted this form of therapy. Later, Dr. Kalinowsky in this country became an enthusiastic exponent of this treatment.

The Sakel method consists of four phases: Preparatory phase; Shock phase; Rest period; Polarization or Terminal phase.

In phase 1 the patient is given eight to thirty units of insulin, four hours later he is given glucose solution. The insulin is increased daily by five to ten units, this is counteracted by equalizing amounts of glucose after four hours. When hypoglycemic coma is obtained, phase two begins.

Phase 2 when the shock dose has been reached, with 100 to 500 units of insulin, each treatment is terminated after four to five hours with sugar solution, containing 1 gm. of sugar for each unit of insulin given. By trial and error it was learned that the coma phase should not be maintained more than for one hour, even if the patient is in good condition.

Phase 3; rest periods were thought necessary. This is now taken care of by weekend rest.

Phase 4; after a patient has received the necessary number of comas, the last week is used to gradually lower the unitage of insulin and it is finally omitted. Dr. Sakel had treated over three hundred cases and found that he was able to stabilize the dominance of the normal personality pattern.

At this hospital the régime is as follows:

Patients are examined as to physical health. Patients having been suffering from schizophrenia for over two or three years, or are over thirty years old, are especially checked for cardiovascular, renal and endocrine defects. X-rays of chest and spine are taken. Blood sugar determination, blood count, and urinalysis are performed.

Beginning with the first day and on every treatment day thereafter, the patient is required to have no food after 8:00 p. m. At 7:00 a. m. he is given ten units regular insulin. This dose is increased every treatment day by ten units until the coma phase is reached, usually 150 to 300 units. On each treatment day the insulin given is countered by as many grams of sugar as units of insulin were given plus 10%. The coma phase is maintained ¼ hour on its first day, ½ hour on its second, 1 hour thereafter for as long as necessary to reverse the schizophrenic process. Usually forty or fifty deep comas are considered sufficient, but many therapists do not hesitate to give up to one hundred and more.

In our practice forty and fifty comas have not produced results satisfactory to us nor to the patients' families. We therfeore have found it necessary once again to resort to the trial and error method. We had given over ten thousand electro-shocks in the hope of improving the schizophrenic's life. Our therapeutic results for electro-shock were excellent in depressions, good in excitements, but only fair to good in schizophrenia. We thought of combining the two methods and discovered that the therapeutic results improved considerably. Others had tried the same plan with similar good results.

Régime: The insulin coma is carried on as long as progress is satisfactory. If and when a patient fails to improve or shows marked changes of behavior or becomes too difficult a problem we resort to electro-shock therapy at cautiously spaced intervals.

The results so far have been very satisfactory. We plan to continue this régime until better results can be obtained by improved methods of electro-shock-insulin-coma therapy, or other methods are offered.

It must be made clear that we are treating a rather serious and malignant mental aberration when we devote our efforts toward the treatment of schizophrenia. Almost heroic therapeutic measures are required and the equipment, means, and methods used, must be diligently, efficiently, and courageously applied in face of the fact that we are working in that field of human existence which lies dangerously close to the zero point, closer even than we do in deep anesthesia. It is therefore important to enumerate shortly some of the phases or syndromes which become manifest as hypoglycemia progresses.

The vegetative vasomotor phase or syndrome presents: Change in pulse rate from normal to 120 or 140 per minute. Marked fluctuation of pulse rate and force. Progressive drop in temperature from normal to 95. Perspiration and salivation. Vasomotor disturbances, such as pallor or blushing. Fluctuations in blood pressure usually to below 100 systolic.

The motor phase or syndrome (convulsive syndrome) also called dry shock syndrome, shows up as early epileptic seizures (before third hour following insulin injection). Sequence: pallor, rapid pulse, cry, conjugate deviation of head and eyes, usually to right, tonic spasms followed by tonic-clonic spasms of epileptic type, cyanosis, spontaneous Babinski, marked lassitude.

Late epileptic seizures (after three hours following insulin injection), occur during coma and resemble early seizures but with preponderance of tonic features. Since these convulsions are due to cerebral irritation produced by protracted hypoglycemia they tend to repeat themselves and if permitted to do so may lead to exitus lethalis by way of status epilepticus. Intravenous glucose here is lifesaving.

Motor phase or syndrome (also called wet shock syndrome) presents motor restlessness; mild hypotonia; clonic twitching like anomalies of tonic re-

flexes, choreic or myoclonic twitchings, primitive movements (masturbatory, coital), pathological reflexes; disappearance of forced grasping, dissociated torsion cramps; decreased muscle tone and reflex activity, absence of reflexes, movement of extremities, clenching of fists; disturbances of consciousness appear as unconsciousness during and after convulsions, early or late, and as clouding of consciousness following recovery from convulsion. As coma phase progresses there develop somnolence, sleep, incipient coma, deep sleep, coma, deep coma.

Dangers of insulin shock and indications for immediate intervention: Hypoglycemia is terminated regularly after one hour deep coma. This is usually accomplished by nasal tube feeding. Earlier termination is indicated in prolonged respiratory dyspnea with moderate cyanosis; in irregular, soft pulse, pallor and respiratory distress; in early appearance of extensor spasms; in progressive deep coma after tube feeding has been administered; also in severe dyspnea or apnea; in cyanosis with rapid, soft, thready pulse; in vascular collapse; late epileptic convulsion; termination is also required in delayed recurrent insulin reaction or hypoglycemia. All of these reactions are real emergencies and usually require the immediate intravenous administration of 50cc. of 50% glucose solution, followed at once by the normally required amount of glucose solution by nasal tube, i.e. 1 gm. glucose for each unit of insulin. At times the administration of oxygen, the infusion of sodium chloride and/or glucose solution, or the hypodermic injection of lobeline sulphate gr. 1/20, coramine 1cc., digalen 2cc., adrenaline chloride, 1cc. of 1-1000 solution, is urgently required. The mechanical aspirator must be used liberally whenever excessive salivation is present to prevent aspiration bronchopneumopathy.

It is very evident that the insulin-coma-electroshock treatment of schizophrenia cannot be taken lightly. In fact it must be taken very seriously by every member of the highly skilled team of workers which constitutes the treatment unit. Everyone must be constantly alert and conscious of the many dangers and emergency relief measures which require immediate and efficient handling of each and every situaton. They must be thoroughly trained and work as one. Our own insulin therapy team, when in full operation, consists of one physician, one nurse, three attendants for a group of ten well selected patients for five to eight hours for each of five weekly treatment days for the duration of three to five months. The equipment must be of sufficient quantity and good quality to assure most efficient function of the unit.

We realize full well that insulin coma and electroshock therapy for schizophrenia are empirical forms of therapy. We theorize as to the ways in which these therapeutic modalities influence the human body economy in such a way that changes are brought about which seem to cause a reversal of a socially impracticable behavior pattern to a socially useful one.

Regarding work done on insulin hypoglycemia some investigators have found that there develops a progressive decrease in cerebral utilization of oxygen and blood glucose, the cerebral circulation remaining unimpaired. The fall of the blood glucose utilization is greater than that of oxygen.

Electro-shock is followed by a moderate decrease in metabolism and a marked decrease in cerebral blood flow in the face of a severe acidosis.

Even though most investigators have not been able to prove conclusively that there exists a demonstrable deviation from the normal cerebral blood flow and oxygen consumption in schizophrenic persons, these and other experiments have opened up a large field for investigation of schizophrenia.

On various occasions some therapists have claimed that they received satisfactory results with so-called ambulant insulin subcoma therapy. This has not been our experience. In fact, judging from the results on patients treated thus who were later committed to this hospital, we must state that this form of treatment seems to constitute a therapeutic error, based primarily on the facts that the therapist can neither correctly control the patient, since he must depend on his will to coöperate, nor the insulin, nor is he able to successfully manipulate the various emergency situations which might occur, whether the patient is treated in the home, nursing home, or general hospital not equipped for psychiatric emergencies. It is true that patients ill with schizophrenia tend to neglect their dietary requirements and are underweight. Subcoma doses of insulin, 20 to 40 units, will often stimulate catabolism and improve metabolism. The patient becomes hungry, eats more and gains weight. This weight gain is looked upon as an all-over gain, but actually shows only a physical improvement. The mental state remains unaffected as a rule.

Lobotomies, lobectomies, leucotomies, topectomies and other psychosurgical techniques have been tried. The results are variable. Hemorrhage is often marked. The personality changes are unpredictable. Schizophrenes show but little social improvement even though they are cared for with greater ease. The convalescent period seems displeasingly long.

The only reason we have not entered the neurosurgical field of therapy is the non-existence of facilities. Neurosurgery requires an elaborate and expensive set-up of apparatus, instruments, equipment, as well as a highly skilled staff, none of which has so far been available. We have on hand sufficient patient material for neurosurgery, but intend to limit

this form of therapy to cases who continue to be a very serious problem even after all other forms of therapy have been tried. Psychosurgery should be employed only as a last resort as the neuro-physiological changes produced in the patient are of an irreversible nature. Reparative neurosurgery, of course, is another matter; that requires special considerations.

It is necessary to mention one other form of therapy for treatment of schizophrenia. Dr. John N. Rosen of New York has treated and successfully rehabilitated schizophrenic patients by psychoanalytic therapy. He takes them into his own home and treats them while they are members of his household. So far he is said to have returned to society at least fifty people, many of whom are earning their own living. Dr. Rosen's own estimate is 70% recovery. Naturally this form of therapy is very time consuming and therefore very expensive. It would be almost impossible to introduce it in any state hospital as funds are simply not available. Even in private practice comparatively few people can avail themselves of this service.

It should be of more than passing interest to every physician to learn of the magnitude of work that has been performed by the medical and allied professions in the study of human psychopathology, much of which was done with the view to discover causes and treatment of the chronic afflictions of human mentation and behavior, especially schizophrenia.

Kleist, following Wernicke, has attempted to localize psychopathy according to a three level concept: Somatopsyche (the vegetative self) which originates in the floor of the third ventricle; thymopsyche (affectivity) and autopsyche (character) both located in the thalamus and pallido-striatum. According to this grouping he differentiates somatopsychic malformations (hysteria, impulsiveness, sexual abnormalities); thymopsychic defects (emotional instability, moodiness, anxiousness, garrulousness, indifference) and lastly autopsychic defects (callousness, self-centeredness, irresponsibility, hypochondriasis, fanaticism, hypersensitiveness). All are present in schizophrenia.

According to Storch the schizophrene suffers from the numerous variations of his being and no-longer-being a biologic unit when he becomes detached from the world at large, by reason of his illness, and appears to have died mentally and physically as a social unit. His feelings are often expressed in descriptive symbolic language.

Another theory is the so-called biologic shock reaction concept. This holds that the brain, in unison with all other body tissues, responds with shock reactions to every impulse, injury, sensory experience as a whole organism. The results are demonstrable as alterations in behavior. These changes may or may not be localizable.

Pulay makes use of the concept of allergy or hypersensitivity. According to this theory every individual is or can be sensitized in various ways to the various noxia or influences which enter the body through the organs of reception. The resulting allergy-like reaction shows itself as a change in the behavior pattern.

Klages, partly following Sherrington and Krehl, believes that there is present in man an antagonism between the intellect and the psycho-somatic unit. According to this theory the intellect strives to exploit the living body for its own gain and to the detriment of the very life of the body which maintains it. This results in a schism as to function and eventually may lead to schizophrenia.

Korzybski believes that most of our psychiatric problems including schizophrenia are due to faulty understanding of words and improper use of their meanings.

Kretschmer teaches what he thought he learned by taking exact measurements. He believes that the dysplastic and asthemic body build favor the development of the schizothymic personality from which later develop schizophrenias of simple, catatonic and hebephrenic types.

Shelton developed a trichotomy resembling Kleists: endomorphy; mesomorphy; ectomorphy.

Bleuler and Jung favor the theory that schizophrenes develop most often from the introverted type of personality.

Several students of human behavior and its aberrations believe that basically the individual strives to develop his capacities and faculties according to values consciously arrived at, calling them moral values or conscience. Society or the social group in which he lives, however, claims as its share certain physiological and psychological productions from the individual. A social conscience develops. This often has to function in contrast with the individual conscience. Conflict situations may arise which create tension states. Deceptive and self-deceptive devices are employed in an effort to appease both the social and the individual conscience. Psychopathic behavior pattern, usually of the paranoid schizophrenic varieties, may develop and may require attention.

Extensive research activities in psychopathology, especially pre-schizophrenic and schizophrenic behavior variations, were and still are carried out by the psychoanalytic schools.

Beginning with Sigmund Freud, the boldest and most original thinker of this new school, developed the scientific investigation of the unconscious by a special technique with almost endless patience in observation, freshness of insight and daring readi-

ness to face the unknown. Yet Freud thought schizophrenia could neither be analyzed nor treated by psychoanalytic methods.

His most ardent disciple, Carl Jung, not seeing everything with the eyes of Freud, investigated other fields and developed the theory of the collective unconscious. It was best described in his "Secret of the Golden Flower." Jung also greatly extended the knowledge of schizophrenia by further developing, with Bleuler, the concept of introversion. He also advanced our knowledge of symbolization and its psychological significance. His theories concerning schizophrenia, arrived at by psychoanalytic methods are expressed in his "Psychology of Dementia Praecox."

Alfred Adler, also a disciple of Freud, also separated from his school and founded the school of "Individual Psychology." It gave the appearance of being the most practicable approach to human psychiatric problems. He stressed the importance of man's desire for power by way of a superiority complex and man's lack of power by an inferiority complex which is said to have its basis in some yet to be discovered organic defect somewhere within the body.

Otto Rank, another pupil of Freud, developed the theory of the birth trauma and the incest motive as causes of man's mental problems and suffering.

Wilhelm Steckel, yet another of his pupils developed further Freud's theory of dream analysis and of homosexuality as factors in psychopathy.

Among American investigators, Smith Ely Jelliff, maintained that personality passes through a series of evolutionary phases which he designated, from lowest to highest by the terms: archaic, organ erotic, narcissistic, and social. This is the usual progression of development of schizophrenia.

Adolf Meyer developed the psychobiologic viewpoint that psychology is the science not only of behavior but of all reactions of the organism, including the introspective productions of the human type of integration. Psychopathology deals with specific complaints and problems in which the total function of the individual is involved. He showed that schizophrenia often results from defective adaptation.

Many other theories have been presented as possible causes of mental illness with direct or indirect reference to schizophrenia. Only a few can be mentioned by name or type: Introspective psychology; masculine-feminine dichotomy; behaviorism; conditioned reflex, graphology, characterology; semantics (psychological wealth and poverty; spiritual freedom and enslavement; economic independence and dependence; superior education and minimal development of skills; affirmation of health and denial of illness); and last but not least the theory of the "As if", i.e. that man behaves as if things were what they seem to be even if his beliefs are contrary to facts.

A number of psychiatrists in various countries consider all forms of schizophrenia as variants of one disease type and there is evidence that this opinion is not too far from the truth as the experience of any large psychiatric hospital reveals no set of rigid criteria or differentiating characteristics which separate one subgroup from another with any semblance of certainty.

Regarding the prognosis of schizophrenia it must be stated that in spite of the tremendous amount of work that has been put into research and therapy we do not yet possess any criteria for any one specific case by which we could determine with any certainty the specific cause, the length of illness, the specific type of therapy to be applied curatively, specific methods for prevention or the length of each remission. This is probably so because schizophrenia is the most widely diversified and the most universally prevalent mental illness known to modern civilized man.

It is our conviction that all forms of physically applied therapy for schizophrenia require some form of psycho- or logotherapy. The most opportune period of its application should be that following the depersonalization, probably at the exact moment when the patient is becoming conscious of himself in a new setting into which he is required to integrate himself for his greater peace of mind and for the purpose of attaining a social stature commensurate with his newly formed goal ideas of successful and soul satisfying living. In order to rehabilitate the schizophrene the therapists need not only the active help and coöperation of the patient, but the active help of all the professional knowledge and wisdom of the medical profession, as well as of the various agencies which are actively engaged in shaping our social structure and remodel our civilization for the greater good of all mankind.

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Tuberculosis mortality in the U. S. Zone of Germany began to rise promptly at the beginning of World War II, reached a peak in 1945 and has progressively declined in 1946 and 1947. The extent of the rise was only moderate as compared with that in several other European nations. — Philip Sartwell, M. D., Charles H. Moseley, M. D., and Esmond R. Long, M. D., *Am. Rev. Tuberc.*, May, 1949.

# THE PRESENT STATUS OF OUR COMMITMENT LAWS

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To any person who has had any experience with the care and commitment of the mentally ill, the inadequacies of our present commitment laws are apparent. These inadequacies can, and should be remedied at the next legislative session in order that the mentally ill of this State may acquire the advantages of treatment in the early stages of their illness at which time the best therapeutic results can be expected. The importance of these changes being made becomes very apparent when it is realized that at least one out of every 17 Americans attaining the age of 15 years is destined to spend some part of his or her life as a patient in a hospital for mental illness. One out of 10, probably will suffer a mental ailment so serious that admission to a mental hospital would be advisable if enough facilities are available. Mental patients represent 51.3% of the total number of hospital patients in the United States in any one day. The United States Public Health Service has estimated that 8 million Americans, more than 6% of the population, are suffering from some sort of mental illness at the present time. When one appreciates the incidence of mental illness in this country, one realizes how extremely important it is that we have commitment laws which will assist patients and their relatives when seeking help.

Laws pertaining to the admission of patients to mental hospitals in the United States have been given serious thought and study by many eminent psychiatrists and jurists alike. Kempf, Medical Director, United States Public Health Service, states that appropriate arrangements for quick and comfortable admission of the needy patient to the mental hospital constitutes exceedingly important measures in the humane care of the mentally ill. One jurist states, the medical rights of these people should be as much respected and given as much consideration as are the legal rights which all are guaranteed under the Constitution. Much unnecessary suffering has been inflicted upon both mentally ill patients and the relatives of these patients because of our present archaic and outmoded laws for the admission of the mentally ill. Today those who are enlightened realize that there should be no more stigma attached to the fact that one suffers from a mental affliction than if one were similarly afflicted with carcinoma, hypertension or tuberculosis. Because of the high incidence of mental affliction, it behooves us, if for no other reason than a purely selfish or personal one, to give consideration and serious thought to the laws which govern the admission of mentally ill patients to our hospitals.

The Maine Psychiatric Society has already unanimously voted that an attempt should be made to change our present commitment laws. This writer believes that to achieve these improvements, which requires legislative action, that the matter should be brought forcibly to the attention of the medical and legal professions, and also the general public. If we are not able to obtain through legislation the most ideal commitment laws, we could at least make tremendous strides towards that goal. In the State of Maine, we do not have the worst commitment laws of the 48 states but there are many features of the present laws which are not humane and which tend to prevent the mentally ill patient and his relatives from seeking early hospitalization.

## What are the Worst Features of Our Present Commitment Laws in the State of Maine

1. *The necessity of a public hearing.*

One of the worst features of our present laws is that a public hearing before our municipal officers is necessary. There is no reason unless the commitment of a mentally ill person is to be contested, why the facts of their illness should be aired publicly, any more than any of us would care to have our own physical or organic conditions known by other than our private physician. If a commitment is to be contested, there is no reason why any relative or interested friends should not be present at the hearing if they so desire. In these cases it is advisable to have a third psychiatrist present, who is appointed by the court or by the patient to give his opinion.

2. *The Serving of Legal Notice or Writ by a Constable to a Mentally Ill Person.*

This procedure is extremely inhumane and entirely unnecessary to protect the rights of the patient involved. Originally, of course, it was devised as a means of protection for the patient's inalienable rights and to prevent him from being railroaded into a hospital. Actually, it is in almost every case injurious to the patient's mental health and constitutes a serious psychic trauma. In the State of Maine it is mandatory that a constable serve a writ to a mentally ill person stating he is insane and is entitled to a public hearing if he so desires, within 24 hours before his admission to a State Hospital. By state statute this writ MUST be served on the mentally ill person himself and not to any other person. Consider for a moment having a constable serve a writ on a physically ill patient stating that he is suffering from

carcinoma, brain tumor, or tuberculosis. It is universally believed that such legislation is entirely unnecessary, that it results, in many cases, in escapeism, violence, and prevents the patient from receiving adequate medical treatment in the early stages of his illness. If the legislators do not see fit to do away with the serving of legal notices upon mentally ill patients, at least there should be a provision in the law whereby the committing physicians could state that the serving of such a writ would be injurious to the mental health of the patient, if such were the case.

3. *The Use of Anachronistic Terminology.*

In many states today, they are still using terms such as insanity, lunacy and parole in their statutes. The term lunatic is a survival from when the moon "luna" was supposed to govern the behaviour of the mentally ill and is still retained in many statutes although long discarded in medical nomenclature. The term insanity is purely a legal term and has no medical significance. Surely any legislator or jurist should not resent having such archaic terms stigmatising sick people stricken from the statutes. Convalescent leave or trial visit should be substituted for such words as parole, which is used in criminal cases. We are dealing with sick people who should not be stigmatized as criminals. In the majority of the states, the hospitals for the care of the mentally ill are no longer referred to as insane or lunatic asylums but rather as State Hospitals.

4. *Physician's Certificate.*

At the present time in this state, as any physician knows who has ever participated in a commitment, he merely signs his name to a Certificate of Insanity certifying that the above named patient is insane. He puts no statement on the paper as to why he decided that such was the fact but merely that it is so. The Certificate should be revised so that he could state specifically what he observed which led him to believe the patient was mentally ill and what facts were reported to him by others that supported this conclusion. This type of certificate, would be of twofold benefit, first, it protects the physician, as he has stated definitely in writing and under oath his reason for recommending commitment; secondly, it is of great value to the doctors at the hospital to which the patient is sent as they have a quick means of evaluating the seriousness of the case. At the present time, when the majority of patients arrive at the Augusta or Bangor State Hospitals the admitting doctors know little or nothing about the reasons for which the patient has been committed except that he is alleged to be insane.

5. *A More Effective Emergency Law.*

An emergency law is primarily important for the protection of the community and the welfare of the mentally ill person himself. It is a temporary commitment which should be based on the existence of a clear emergency evidenced by the actions of a patient dangerously mentally ill, who constitutes a menace to himself or others. It nullifies the necessity of arresting these individuals and incarcerating them in a jail or prison where heretofore they have been kept for indefinite periods of time, manacled, ill treated, and to all intents and purposes, regarded in the same light as dangerous criminals. It should be noted that at the present time we have an emergency law in Maine which is strictly permissive legislation. It is not mandatory upon the superintendent to receive such cases. There is no argument that this aspect of the law is not perfectly sound as the superintendent of either state hospital may discharge any patient at any time he is satisfied that the patient is not in need of hospital care. Furthermore, it is extremely unlikely that any superintendent would refuse to admit a true emergency to his hospital, in spite of the fact that it is permissive legislation, because of the ensuing criticism which would develop if a dangerously ill patient should become injurious to society or himself. However, our present emergency law is difficult to use because it is necessary for a patient to be examined by 2 qualified physicians and because it is mandatory for him to be served with a writ by a constable prior to his admission to a hospital. The only difference between our present emergency law and the regular commitment law which we have at the present time is that there is no necessity for a patient to be detained for 24 hours following the serving of the writ before he can be admitted to the hospital. Our present emergency law would be much more effective if it were only necessary for a police officer, a selectman, or a single physician to sign an emergency paper that a patient be immediately admitted because of definite evidence of a clear emergency as manifested by the actions of the patient. The superintendent of the Augusta State Hospital is of the opinion that proposed emergency commitment legislation should be mandatory when passed and not permissive.

1. Many cases which are not clear emergency cases are prone to become such, because of the necessity of a 24-hour interval between the serving of the legal writ stating that said person is insane and a public hearing. Many cases having legal notice become extremely disturbed, violent, attempt to escape and have to be kept in a jail instead of in a hospital where they belong. To obviate this difficulty, many cases have been committed as an emergency which, according to the true letter of the law, should be regularly committed.
2. In the larger municipalities after the patient has been examined by two physicians, there may be

a delay of from 5 days to two weeks before it is possible to get hospitalization for a patient at a State Hospital because of the necessity for waiting for the next meeting of the municipal officers. This writer is not criticizing the municipal officers, public-minded citizens, who are working for the people's interest at a minimal salary, for not leaving their positions at any time during the day or night to convene and it is not to be expected. However, practically, it results in physicians in the field attempting to make emergency cases out of many cases which in the literal sense of the word are not true emergencies. It is injurious to the mental health of the patient and a tremendous ordeal and hardship to his relatives to have the care of a mentally ill person for a week or two after it has been decided by two competent physicians that he is in need of hospital care and treatment. It has been a common experience of the psychiatrists in our State Hospitals in Maine, to see patients admitted who have been kept under the influence of opiates for many days; dehydrated, unkempt, and whose physical as well as mental health has suffered seriously due to the inaccessibility of our present emergency commitment measures.

## The Essentials of a Satisfactory Commitment Law

The Group for the Advancement of Psychiatry has published a circular in which the laws governing commitment in each of the 48 states have been summarized and studied and the good and bad aspects of the different commitment laws have been pointed out. This group consists of approximately 150 American and Canadian psychiatrists, leaders in the field, which was formed with the intention of stimulating progressive, active research and further study in spheres where such may be needed. They point out that the essentials of a satisfactory commitment law are Minimum Legal Formalism, Minimal Psychic Traumatization in admission proceedures and Removal of Stigmata resulting from archaic legal phraseology. The most ideal commitment law according to this group is a certificate signed by two physicians accompanied by a complaint by a guardian, blood relative, husband or wife of such person, or a Justice of the Peace or Notary Public. This law is in effect in 6 states of the 48 states; namely, Louisiana, Vermont, Rhode Island, Pennsylvania, Maryland and New Hampshire. In Pennsylvania and New Hampshire the Physician's Certificate requires certification by a law judge or magistrate. This is the commitment law which was so disastrously defeated in the last session of the legislature.

This author is well aware of the desirable features of this commitment law; however, he definitely feels that there are certain undesirable features of it, particularly in a state like ours. In the first place, there are very few qualified psychiatrists in the State of Maine due to the fact that it is relatively sparsely populated, and it is only in the thickly populated areas that a man trained in psychiatry can earn a living. As a result, the vast majority of all the commitments are carried out on the recommendation of General Practitioners. There are many cases particularly those of "litiginous paranoiacs," where this type of commitment does not seem to afford sufficient protection to the committing doctors. There is no question but that the responsibility for recommending mental hospitalization should rest squarely upon the shoulders of the medical profession. It would, however, be a safeguard, both to the patient and the committing doctors, if some law officer or magistrate should certify the recommendation of the doctors and complainant, such as is done in Pennsylvania and New Hampshire. Flashner states, "The sole reliance of medical authorities in the commitment process is also opposed by present inadequacies in the numbers of psychiatrists and other kinds of specially trained personnel in psychiatric training and mental health facilities."

In summary, this writer firmly believes that the undesirable features of our commitment laws should be remedied as soon as possible. It would seen particularly necessary to remedy the points mentioned above; namely, public hearing, serving of legal notices and use of anachronistic terminology. The physician's certificate should be revised and on it the committing doctors should note what they have observed in the patient and what others have reported to them which has led them to believe the patient is mentally ill. A more effective emergency law should be effected wherein in an acute emergency a patient could be admitted immediately to a hospital upon the signature of a selectman, police officer or a physician. In the regular involuntary commitments there should not be any necessity for a 24-hour delay or longer for a patient to be admitted to a State Hospital after it has been decided by two competent physicans that he is in need of mental hospital care and treatment. This author feels that both the patient and the committing doctors' rights should be protected by some legal officer or magistrate.

As has been said, when dealing with the mentally ill, we are dealing with an inarticulate group, and therefore it is up to us to give them every possible consideration in obtaining hospital care and treatment. Those people who have been patients at State Hospitals and have recovered and been discharged, are not prone to talk about their experiences. It is also a well known fact that veterans who have been

discharged from service with a diagnosis of mental disease have been refused employment even though they have entirely recovered from their mental illness.

To recapitulate the Maine laws governing state hospital admission need careful revision. Our statutes should be such that hospitalization for the mentally ill may be effected promptly with due consideration for the rights of the individual with a minimum of psychic traumatization to the patient and with elimination of archaic legal terminology. The medical profession should give serious consideration to this problem.

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*Care of the Newborn—Continued from page 6*

should be made to lay the ground work for a future sound mother-infant relationship. The cultivation of this relationship is helped by breast feeding and the adoption of some modification of the "rooming-in" principle.

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Phthisiologists have long agreed that the diagnosis of tuberculosis must rest upon the laboratory demonstration of tubercle bacilli in tuberculous suspects. — Francis J. Weber, M. D., *Pub. Health Rep.,* Oct. 1, 1948.

# ANESTHESIA FOR CESARIAN SECTION

Philip B. Thomas, M. D., and Clement S. Dwyer, M. D.*

The medical anesthetist in the larger hospital has at his disposal a wide variety of anesthetic agents and methods for the management of Cesarian sections. Anesthesia can be individualized to meet the problems of both the mother and the baby. In the smaller hospital however, anesthesia is administered either by a nurse or by the occasional medical anesthetist and only a few methods and agents are available. It is the purpose of this brief discussion to point out common pitfalls and errors in premedication and anesthetic technic in the hope that it may prevent an occasional maternal disaster and result in the saving of infants who might otherwise die. A technic which is satisfactory for the mother may result in a narcotized, apneic baby who requires many minutes of resuscitation. Even after spontaneous respirations have begun, the residual depression from the medication or the anesthetic may lead to atelectasis. Pneumonia or death may follow within a few days. The possibility of cortical necrosis and permanent mental inferiority after severe asphyxia neonatorum leaves no doubt as to the potential dangers of anesthetics, narcotics and hypnotics.

## Premedication

Preanesthetic medication plays a most important role in the proper management of Cesarian sections. As a general rule, the least medication which will suffice for the mother is the best medication for the infant. Drugs which narcotize the mother exert a similar action on the fetus and thus the physician must give serious consideration to the value of each narcotic or hypnotic which he choose to administer.

Morphine sulphate, which has had undue popularity in many quarters, may be distinctly harmful to the baby. It is a profound respiratory depressant especially in the presence of prematurity or fetal distress from any complication.

Demerol, though less depressant to respirations than morphine, is best used in combination with spinal, caudal, or local anesthesia. With an especially nervous woman it may be feasible to administer 50 to 75 mgm. before inhalation anesthesia.

Short-acting barbiturates such as seconal or nembutal may be given in moderate docasge for sedation before anesthesia. It is preferable to employ these drugs as a substitute for rather than in combination with demerol.

Atropine sulphate or scopolamine hydrobromide is of great value in depressing mucus secretions in the respiratory tract and in preventing noxious reflex effects of operation and anesthesia. One or the other of these drugs is used almost routinely.

In the usual elective case, atropine or scopolamine gr. 1/150 is given about one hour before operation. If necessary for sedation of the mother 50-75 mg. of demerol or 0.05-0.1 gm. (gr. ¾-1½) of seconal or nembutal is given at the same time.

When Cesarian section is to be performed after a trial of labor, the patient may already be heavily medicated and added depressant drugs are not indicated.

## Agents and Methods

For the general practitioner, open drop ether is undoubtedly the safest choice although there are other agents superior to ether especially in the presence of maternal or fetal complications. The advantages and disadvantages of some of the other agents will be merely mentioned.

*Open drop ether:* Anesthesia should be begun only after the operators have scrubbed and entered the operating room. Resuscitation of the baby may be difficult if anesthesia is started prematurely. Anesthesia should be light because only minimal relaxation is necessary. Often the surgeon will complain since he is accustomed to the relaxation of deep surgical anesthesia required in the usual abdominal surgery. Induction should be carried out as rapidly and smoothly as possible with avoidance of too high a concentration of ether vapor which might cause breath-holding or laryngospasm in the stages of analgesia and excitement. Upper respiratory obstruction with cyanosis is to be avoided. A rubber nasopharyngeal airway may obviate a prolonged induction due to obstruction. Plane 1, Stage III is sufficient. At this level, respirations have become regular, swallowing has ceased, and the period of vomiting has passed. Movement or an eccentric position of the eyes indicates that the patient is in light surgical anesthesia. It is advisable to insufflate oxygen under the mask to insure adequate oxygenation of the mother and infant. After delivery, deeper anesthesia may be employed but is is usually unnecessary.

*Nitrous oxide-oxygen-ether:* If an anesthetist capable of using an anesthesia apparatus is available, nitrous oxide-oxygen-ether is preferable to open drop ether. A nitrous oxide-oxygen mixture is not sufficiently potent to produce Plane 1, Stage III anesthesia

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without lowering the oxygen percentage to undesirable and dangerous levels. Enough ether is added to the mixture to bring about the desired plane. The oxygen percentage should never be permitted to fall below 20%.

*Cyclopropane:* Cyclopropane is a very potent gas which should be administered only by experienced personnel. Induction is quiet and rapid and the patient awakens shortly after the termination of anesthesia. Blood loss is usuually minimal because the uterus contracts quickly after delivery and responds well to oxytocics.

*Pentothal:* This agent has gained little favor for Cesarian section. The margin of safety for the baby is very small and severe fetal narcosis may result if delivery is not effected within 8 to 10 minutes after anesthesia is begun. It is, however, of great value as an adjunct to spinal, local, or regional methods after the baby has been extracted.

*Spinal anesthesia:* The greatest advantage of this and other forms of regional anesthesia lies in the fact that the infant is not narcotized. Breathing and crying usually occur immediately after delivery of the head. It is of great value in toxemias, prematurity, diabetes, etc., but it is contraindicated in shock or hemorrhage as from placenta previa or abruptio placenta. Some mothers are emotionally unsuited for the method while others object to remaining awake until the baby is born. The single injection technic employing small doses of pontocaine-glucose or procaine-spinal fluid is satisfactory. Some anesthetists prefer the fractional spinal technic whereby intermittent small doses are injected until an adequate level of analgesia is obtained. The frequent occurrence of severe hypotension with ensuing cerebral hypoxia and the distinct possibility of uncontrolled cephalad spread of the anesthetic drug leading to respiratory failure preclude the safe use of spinal anesthesia by the occasional anesthetist who is unfamiliar with the prevention and treatment of these untoward reactions.

*Caudal anesthesia:* Caudal anesthesia, whether administered by the single injection or continuous technic, is a technical and time-consuming procedure which requires skill and training if it is to be successful. The main hazards are uncontrolled height of anesthesia from accidental deposition of the anesthetic solution within the subarachnoid space and convulsions or vasomotor collapse from intravascular injection. As with spinal anesthesia, hypotension may create a serious problem. Adequate analgesia may not always be obtained with this method.

*Local anesthesia:* Local infiltration of the operative site with 1% procaine or preferably abdominal wall block is an excellent technic when combined with pentothal and nitrous oxide-oxygen as the uterus is opened. The method demands skill and care in the handling of tissues but lower maternal and fetal mortality rates make extra care and inconvenience definitely worthwhile.

## Summary

Safe anesthesia for Cesarian section is of extreme importance because we are concerned with two lives. From the standpoint of the general surgeon in a small hospital, open drop ether with the patient in light surgical anesthesia and with minimal premedication will prove most satisfactory in the majority of cases. Local anesthesia combined with pentothal and nitrous oxide-oxygen is an excellent method which deserves greater recognition.

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Environment is part of the treatment of tuberculosis. It is well established that recovery from infection is facilitated by good nutrition, adequate sleep, mental peace, and the many intangible factors which may be included in the term "environment." Any hospital or sanatorium which does not give full cognizance to these fundamental physiologic and psychosomatic factors is not carrying out a complete therapeutic program. It may even be delaying the date of dismissal of patients and adding to the misery of patients and the expense borne by tax-payers. Money expended for job training, decorations, music, and flowers may be justified as truly as money spent for opiates or surgical treatment. — H. Corwin Hinshaw, M. D., *Nat. Tuberc. A. Tr.*

Streptomycin suppresses but does not kill tubercle bacilli in the human body. Hence we cannot and must not think of streptomycin as a definitive, all-sufficient treatment. It must fit into the over-all strategy of treatment, and it complicates, rather than simplifies, the task of the physician. It is necessary to know not only whether or not to use streptomycin but also when to use it, because often it can be used only once. Each time it is used, there is a possibility of altering the bacterial population so that only drug-resistant bacteria remain. If a more serious tuberculous complication develops later, recourse to streptomycin might then be useless. — H. Corwin Hinshaw, M. D., *Nat. Tuberc. A. Tr.,* 1948.

# THE PROBLEM OF HOSPITAL CARE FOR THE INDIGENT PATIENT IN MAINE*

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With the greatly increased expense of maintaining a hospital and providing the necessary type of service it is becoming well-nigh impossible for hospitals to provide care for indigent patients and remain solvent. Increased cost of food, of medical supplies and of nursing service, just to mention the outstanding items, places such a strain on the budget that hospitals almost universally operate in the red, depending upon periodic drives to make up deficits. Earnings from endowments, if there be endowments, are down and the former depended-upon contributions from philanthropy are fast becoming as extinct as the dodobird.

Consequently hospitals may well ask of themselves —"Where are we going? Can we depend upon periodic drives to make up deficits already accumulated? Will the Community Chest contribute, and continue to contribute, sufficient funds to keep the hospital going? Shall our hospitals have to curtail the amount of free service for indigents, perhaps limiting it to the community and in proportion to the amounts received from the Chest and other contributions? Or shall we be obliged to give up the voluntary status which has developed the finest standards of service in the World and turn over our institutions to the Government to be administered in conjunction with a Government controlled Medical Profession?

This latter contingency means Political Medicine and Hospitalization, and would inevitably result in a lowering of standards and a loss of those personal human relations which are so important in this mission of caring for the Sick. Those of us who are sincerely interested in preserving these standards and improving them, would deplore this last solution to our problem. But, if we are to avoid this, it behooves us to take a realistic view of the situation, to study it intelligently; to the end that we put our own house in order and then, by united efforts, obtain Public support for a real constructive program.

By some means or other we must achieve a balanced budget and keep within it. Easier said than done, I'll admit—but this must be done if we are to survive. Let's stop shedding futile tears and hoping for a Santa Claus who has become hopelessly outdated. Let's analyze our situation, find out its weaknesses and its needs, and then, seriously and courageously, prepare to meet it.

I think it is fair to say that any well-run and well-staffed hospital could operate within its budget if concerned only with private and semi-private accommodations. If it could not, something would be radically wrong and a change in management would be in order. The big difficulty, and the universal one, is the problem of taking care of the indigent, and, in many instances, the paying patient in the ward.

Yet, hospitals, traditionally, have had a moral obligation to take care of the indigent. Indeed, service to the poor was the original purpose of the voluntary hospital, and the extent and character of this service was, often, the criterion of the place held by the hospital in the community and State. It was not so very long ago that private patients, very largely at least, were cared for in the so-called private or proprietary hospital, formed, if not actually operated for profit. The extension of the services of the voluntary hospital to the private patient, was a comparatively later development, inspired both by a desire to provide a more complete and more efficient service to these patients, and by a realization that this offered the hospital a legitimate source of revenue, which even then was becoming necessary.

In the good old days ward rates were arrived at most often on a haphazard basis, without regard to cost of operation. While many institutions are now handling this matter of ward charges on a more realistic basis, there is still grounds for suspecting that this practice is not universal, at least here in Maine.

Ward charges should reflect the cost of caring for the patient, semi-private fees should return enough more to take care of necessary replacement of equipment, and revenue from private rooms should allow for future improvements or expansion. If we finally realize that Santa isn't coming, at least as frequently as he used to, is there any other way of operating on a sound basis, one which will permit continued efficient operation?

One cannot criticize insurance carriers for refusing to pay more than ward rates when the persons covered would naturally take this type of accommodation if they were paying for care themselves. And if this rate is inadequate to meet costs, the hospital needlessly loses legitimate revenue. Ward rates at cost, intelligently arrived at, would help solve the problem. This does not mean a fictitious, haphazard figure, but one based upon a good accounting system such as should be available to any hospital. During my term as President of the State Hospital Association, we were able to offer our hospitals a consulting service in setting up the Uniform Accounting System advocated by the American Hospital Association.

* Read at the Annual Meeting of the Maine Hospital Association, Portland, Maine, December 2, 1949.

This was made possible through a generous grant from the Bingham Associates. I regret to say that not all our hospitals were interested in taking advantage of this service. But even with a ward rate reflecting the cost of caring for the patient, the problem of the indigent, or the semi-indigent, is not easy of solution here in Maine. We have struggled along with our State Aid, originally meant as a supplemental payment to assist needy patients in meeting their hospital bills; but in actual practice, being almost always the sole source of revenue to the hospital for these cases. We have seen this get as low as $1.20 a day for patient care and at its best it never exceeded $5.00. And today with costs running to $13.00 to $15.00 a day it is about $4.00.

This has meant that our private patient has had a hidden special tax imposed upon him to help carry the load of the indigent. How much fairer to spread this tax over the entire Public rather than upon the individual already incapacitated from gainful employment by reason of illness. The hospital care of the indigent should be a responsibility of the Public, either the Community or the State. This should be met from tax moneys, at cost, no more but no less. The failure of our last legislature to vote additional taxes, together with the increased demands upon the funds available for State Aid to Hospitals, has forced the Department of Health and Welfare to further decrease the per diem payments for indigents. Thus the situation becomes even more critical. The well-known habit of many municipalities of refusing to assume responsibility for hospital care of their indigents, sometimes after a verbal assurance by some official in order to obtain admission, holds little hope to the hard-pressed and long-suffering hospital.

What then is the hospital to do and still be a hospital in the true sense of the word? Means must be had to meet costs of operation. Food, fuel and supplies must be paid for. Salaries must be met. The poor private patient certainly cannot stand anymore special taxation, in the guise of increased charges, and there is no chance of additional funds for State Aid for at least two years. Hospitals already have had to revise their policies as to admissions, at least on paper. Certain hospitals are proposing to accept cases only from their own communities, but this is a provincial solution and hardly satisfactory to our goal of an integrated hospital system. And what of the emergency case dumped on the hospital's door-steps?

Certainly careful selection of cases for admission, ascertaining the degree of emergency, and an earnest effort to make towns and municipalities assume responsibility are all necessary and may help until we finally get public support, at cost, for these cases.

The selection of cases, or screening, brings up a factor of considerable importance in this whole problem. Study of the situation shows that a minority of our hospitals are carrying this indigent load. To a certain extent this is inevitable and proper, at least insofar as professional facilities may be available. Cases requiring services of specialists in different fields of Medicine must and should go where these services are available. But when cases can be handled adequately near at home, where the required professional services are available; it is better for all concerned, patient, family and hospital, that local facilities be employed.

Now care of the indigent should provide free professional service. If my profession is to remain a profession it should be the duty, indeed the privilege, of the physician to give freely of his services to the poor and needy. Otherwise it becomes a trade and we might as well accept Government or Political Medicine and have done with it. And the doctor does not lose by it. Oftentimes the so-called charity case provides the best educational material. Often he learns a great deal from the opportunity of seeing this case. His field is broadened and he gains in experience, becoming a better and more proficient doctor, thereby.

Unfortunately not all of our hospitals provide free professional service for these cases. Therefore, they are sent, necessarily, to the other hospitals that do, thereby adding to their already serious financial burdens. Only fourteen of our sixty odd hospitals take State Aid patients for that reason. Admitting that these fourteen comprise the largest number of hospital beds, this seems manifestly unfair. Hospital trustees throughout the state should see to it that their individual institutions take their share of State Aid patients and that their staffs be organized to render free service to these cases.

Physicians need hospitals, just as hospitals need physicians. The better the economic status of the hospital, the better able it is to provide the desired service to the doctor. While there is justification for paying fees from public funds to physicians for the home care of indigent patients, especially when considerable travel may be involved, the management of these patients in the hospital is a different matter. The physician's time is conserved; equipment, dressings and drugs are provided; and adequate assistance is available. In return for having the privileges of the hospital, and in order to improve its facilities, he should be willing to provide free professional services for these indigent cases. By far the majority of our physicians do this willingly, and do a grand job. But in those communities in which this free service to indigents is not available there is bound to be a lessened prestige, both to the hospital and to the Medical Profession. And with the threat of Government-controlled Political Medicine hanging over our heads, we need the support of the Public.

*Continued on page 27*

# CLINICO-PATHOLOGICAL EXERCISE

## Case presented at the Maine General Hospital, Portland, Maine

Edited by Joseph E. Porter, M. D.

This is the case of a 65-year-old housewife, who was first admitted to this hospital on March 9, 1947, with a history of numerous episodes of vomiting and jaundice over a period of three years. She was X-rayed by her local doctor, and told she had gallstones, following which she was given a diet and took medicine (Ketochol), with some relief of symptoms until the Fall of the year previous to admission. At this time she had pain in her upper abdomen; her abdomen became distended and she vomited large amounts of food and old bile three times. She had taken Cascara once a week, Seidlitz powders for relief of pain, and had avoided fatty and highly-spiced foods.

Past History: No history of tuberculosis, cancer, or diabetes in the family. She had the usual childhood diseases; typhoid fever and phlebitis at 16 years of age; pneumonia eight years before; cystitis twenty years before. She had had very poor circulation in the feet since September of that year. Her appetite had been fair. Catamenia: Onset at 13 years of age; periods regular and normal; no pregnancies. She had had a hysterectomy 20 years before; radium previous to the hysterectomy.

Physical Examination: An apprehensive woman, with no acute symptoms. Reflexes active. Throat negative; mouth edentulous. Neck: no glands felt. Chest negative. Breasts normal. Heart sounds regular, of good quality. Abdomen soft; no masses palpated; median abdominal incision; slight tenderness to deep pressure in right upper quadrant. Vaginal and rectal examinations negative. Extremities: No pulsations in either foot; no gross discoloration.

Laboratory Studies: Urine normal. Blood: Hb. 114%, or 16.4 gm.; WBC. 10,150; 72% polys, 24% lymphocytes, 4% monocytes. Platelets normal in smear. Van den Bergh negative. Bromsulfalein: No dye retention. Prothrombin time 123% of normal concentration. Total protein 7.5 gm.%.

An operation was performed on March 20, and dense adhesions of the colon to the abdominal wall were found; the gall bladder was filled with stones and buried in adhesions. The common duct was opened and the hepatic ducts probed, a 4 mm. dilator was passed into the duodenum. Bile was clear; no evidences of stones. T-tube drainage was instituted. Exploration of the lower abdomen disclosed a mass the size of a fist, involving the terminal ileum and cecum. This was delivered with some difficulty, apparently an old inflammatory mass, in the center of which lay a partly obliterated appendix with injected vessels. There was some thickening of the terminal ileum, and one plaque showed scarring. The mesentery was thickened; the surgeon felt it probably was not terminal ileitis, but the result of past appendicitis. Pathological report: Chronic cholecystitis; cholelithiasis; healed appendicitis, with obliteration of the lumen.

The patient had an uneventful convalescence, other than for a mild low-grade fever, with temperature to 100°. The T-tube was removed on the 15th postoperative day, after a normal cholangiogram. She was discharged on the 17th postoperative day.

She was readmitted two years later, on March 23, with a chief complaint of abdominal discomfort and distension. Following the previous admission and operation she had gained weight and led a normal active life, until approximately nine months before admission, when she noted pain in the right lower quadrant, irregularity in bowel habits, but noted no blood or mucus in her stools. On one occasion she was aware of a mass in the right lower quadrant. These symptoms became more intense, and she started to lose weight. Eating did not aggravate the pain, but she lost her appetite. About two months prior to admission she had several attacks of severe pain, requiring medication for relief.

Physical Examination: A frail-appearing, apprehensive female. Reflexes active. Throat negative; mouth edentulous. Chest clear; no rales. Heart sounds normal; no murmurs. Breasts normal. The abdomen showed scars of hysterectomy and cholecystectomy. There was a mass in the right flank the size of an orange, which seemed to lie closely beneath the right rectus scar. Vaginal and rectal examinations were negative. The extremities showed diminished circulation; pulsation not palpable in the feet.

X-rays showed a lesion in the right lower quadrant, in the region of the cecum; whether extrinsic or intrinsic could not be stated.

Laboratory Studies: Urine normal. Blood: Hb. 76%, or 11 gms.; RBC. 3,740,000; WBC. 6,600; 65% polys, 43% lymphocytes, 2% eosinophils. Total protein 6.89 gms.%. Prothrombin time 90% of normal concentration.

An operation was performed.

## Discussion

*Dr. Eugene McManamy:* The resumé of the salient features of this case may be briefly summarized as follows: A 65-year-old female, with a past history of typhoid fever, and phlebitis, at the age of 16, and a hysterectomy which was performed on her 20 years previous to this admission. Three years previous to this admission, the patient was suffering from chronic cholecystitis and cholelithiasis, and obstructive type of jaundice. She was admitted to this hospital for treatment of this condition, and on March 20 of that year, during the operation for removal of the gall bladder and exploration and drainage of the common duct, significant findings were encountered as well, in the ileocecal area. The surgeon's report at that time was that there was a mass the size of a fist involving the terminal ileum and cecum. There was some thickening of the terminal ileum, and one plaque showed scarring; in the center of the inflammatory mass an obliterated appendix was encountered and was removed. The feeling was that this condition of the terminal ileum was not due to terminal ileitis, but resulted from past appendicitis. On this admission, the chief complaints worthy of noting are as follows: Abdominal discomfort, distension, pain in the right lower quadrant, and irregular bowel habits, without mucus or blood noted in the stools. Also, the patient states that on occasion there was a mass noted in the right lower quadrant. The patient also began to lose weight at the time of the onset of these complaints.

The physical examination of the patient at this time revealed the following positive findings: The abdomen showed scars of hysterectomy, cholecystectomy, and in the right flank a mass the size of an orange, which seemed to lie closely beneath the right rectus scar. The extremities showed diminished circulation and no arteries could be palpated in the feet. The laboratory findings were not particularly unusual, except that the patient had a mild degree of anemia, and a fairly normal white cell count, except for a slight increase in lymphocytes.

Before attempting to make a diagnosis in this case, I should like to have a review of the X-rays by Dr. Russell.

*Dr. Walter Russell:* There isn't a great deal here to help you. This shadow is gas in the large bowel and rectum. There is an absence of gas and suggestion of soft tissue density in the region of the cecum and terminal ileum.

*Dr. McManamy:* The first disease that comes to mind in this case is, of course, carcinoma of the cecum. However, there are reasons why this diagnosis should be ruled out. If carcinoma of the cecum were present here, the patient should have more definite symptoms of anemia, and there should be a history of having passed either bloody or tarry stools. Also, I feel that the present condition was encountered at the previous operation 3 years ago, and if carcinoma of the cecum were present then, as well as now, the condition would have been recognized. Failing that, I do not believe that the patient would have lived this long. I therefore feel that we can safely rule out carcinoma of the cecum. The next condition which came to mind in reviewing this case was the possibility of a benign tumor in the terminal ileum. There are a variety of benign tumors which are found in the region of the ileocecal valve, such as lipoma, adenoma, fibroma, myoma, and so forth. These tumors are commonly found in the region of the terminal ileum, and they do occur in this age group. Here again if a benign tumor was present at the time of previous operation, I believe it would have been recognized, and I still feel that the lesion we are concerned with today was present three years ago. I feel, therefore, that we can safely rule out a benign lesion. The third disease worthy of consideration is solitary diverticulum of the cecum. If this diverticulum had ruptured at any time, an abscess would have formed, and give the presence of a mass such as was found in this case, and this condition does exist in the age group of this patient. Also, this patient has a past history which is suggestive of diverticulosis. However, again, since diverticulosis is a condition which has definite chronicity to it, I believe it would have been discovered at the time of her exploratory and cholecystectomy three years ago. For this reason I believe that we can disregard diverticulosis. The fourth disease worth considering should be actinomycosis of the cecum.

This patient could well have been suffering from actinomycosis of the ileocecal region for a considerable period of time, and the examination of the terminal ileum and the cecum at the time of the operation three years ago would have revealed a gross pathological picture a good deal like that which was described. However, if actinomycosis were present then, it seems to me that the result of the manipulation and appendectomy would have left this patient with a chronic sinus tract with sporadic drainage and inflammatory reaction in this region, and I believe that she would still have a sinus tract as of today, and therefore I am against the possibility of actinomycosis being responsible for her present complaints.

The next pathological condition which could fit into this picture, and which we should keep in mind, is regional ileocolitis. All the signs and symptoms as described here are characteristic of regional ileocolitis. The weight loss, chronic gastrointestinal complaints, the change in bowel habit, and the presence of a palpable mass, are all significant. Against the possibility of regional ileocolitis are the following: This condition most often occurs in younger people. Secondly, the pain due to regional ileocolitis is usually

*Continued on page 28*

# EDITORIAL

## American College of Surgeons Approves 22 Maine Hospitals

Twenty-two Maine hospitals were included in the list of 3,284 hospitals in the United States, Canada, and a few other countries, approved by the American College of Surgeons as of December 31, 1949.

The list of approved hospitals in Maine follows:

Augusta General Hospital, Augusta.
Eastern Maine General Hospital, Bangor.
Mount Desert Island Hospital, Bar Harbor.
Bath Memorial Hospital, Bath.
Waldo County General Hospital, Belfast.
Saint Andrews Hospital, Boothbay.
Cary Memorial Hospital, Caribou.
Central Maine Sanatorium, Fairfield.
Franklin County Memorial Hospital, Farmington.
Gardiner General Hospital, Gardiner.
Western Maine Sanatorium, Greenwood Mountain.
Central Maine General Hospital, Lewiston.
St. Mary's General Hospital, Lewiston.
Maine Eye and Ear Infirmary, Portland.
Maine General Hospital, Portland.
Mercy Hospital, Portland.
Presque Isle General Hospital, Presque Isle.
Knox County General Hospital, Rockland.
Rumford Community Hospital, Rumford.
Henrietta D. Goodall Hospital, Sanford.
Sisters' Hospital, Waterville.
Thayer Hospital, Waterville.
Northern Maine Sanatorium, Presque Isle (conditionally approved).

The "Approved List of Hospitals" was announced at the conclusion of the 32nd annual survey conducted by the College under its Hospital Standardization Program. Only 89 hospitals were approved after the first survey in 1918, according to Dr. Malcolm T. MacEachern of Chicago, Director of the College. The survey list in 1949 included 3,998 hospitals of 25 or more beds, of which 82 per cent are approved. Of the 3,284 total approvals, 2,981 or 74.5 per cent are full approved and 303 or 7.5 per cent are provisionally approved. Every hospital is reconsidered for approval each year. A point-rating system, by means of which every kind of service is separately evaluated, is employed in the surveys.

Briefly summarized, the fundamental principles for approval of a hospital by the College are as follows:

1. Modern physical plant, assuring the patient safety, comfort, and efficient care.
2. Clearly defined organization, duties, responsibilities, and relations.
3. Carefully selected governing board with complete and supreme authority.
4. Competent chief executive officer or administrator, well trained in all phases of hospital administration, with authority and responsibility to interpret and carry out the policies of the hospital as authorized by the governing board.
5. Adequate and efficient personnel, properly organized and competently supervised.
6. Organized medical staff of ethical, competent physicians and surgeons.
7. Adequate diagnostic and therapeutic facilities under competent medical supervision.
8. Accurate, complete medical records, readily accessible for research and follow-up.
9. Regular group conferences of the administrative staff and of the medical staff for reviewing activities and results so as to maintain a high plane of scientific efficiency.
10. A humanitarian spirit — the primary consideration being the best care of the patient.

## COUNTY SOCIETIES

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# COUNTY SOCIETY NOTES

## Franklin

At the annual meeting of the Franklin County Medical Society, held December 12, 1949, the following officers were elected for 1950:

President, Maynard B. Colley, M. D., Wilton.

Vice President, George L. Pratt, M. D., Farmington.

Secretary-Treasurer, Paul E. Floyd, M. D., Farmington.

Censors: Drs. Harry Brinkman, Cecil F. Thompson, and Currier C. Weymouth.

Delegate to the Maine Medical Association: Currier C. Weymouth, M. D., Farmington. Alternate, Dr. Pratt.

Wallace H. Duffy, M. D., was elected to membership.

PAUL E. FLOYD, M. D.,
*Secretary.*

## Hancock

The annual meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, Maine, December 14, 1949. There were 13 members and two guests present. The minutes of the last meeting and the treasurer's report for the year were read and approved.

The following officers were elected for the coming year:

President, Lyman C. Burgess, M. D., Blue Hill.

Vice President, Ernest L. Coffin, M. D., Northeast Harbor.

Secretary-Treasurer, Charles H. Knickerbocker, M. D., Bar Harbor.

Censors: Drs. Raymond E. Weymouth (3 years), Lyman C. Burgess (2 years), Phillip L. Gray (1 year).

Delegate to the Maine Medical Association: James H. Crowe, M. D., Ellsworth. Alternate, Harry Kopfmann, M. D., Deer Isle.

A follow-up on a case of infectious mononucleosis was presented by Dr. Burgess. A question and answer session on various aspects of allergy was led by Dr. Martyn A. Vickers of Bangor, and extensive discussion followed.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## Kennebec

The annual meeting of the Kennebec County Medical Society was held at the Augusta State Hospital, Augusta, Maine, December 8, 1949, at 6.30 P. M.

Valentine J. Moore, M. D., of Waterville, was elected to membership. The minutes of the previous meeting and the annual reports of the Secretary-Treasurer, were read and approved.

The following officers were elected for the coming year:

President, Allan C. Hurd, M. D., Gardiner.

Vice President, Edwin W. Harlow, M. D., Waterville.

Secretary-Treasurer, Arch H. Morrell, M. D., Augusta.

Council: Drs. Harold E. Small (1952), Francis H. Sleeper (1950), and M. Tieche Shelton (1951).

Delegates to the Maine Medical Association: Charles E. Towne, M. D., Waterville; Leon D. Herring, M. D., Winthrop; Frank B. Bull, M. D., Gardiner; William L. Gousse, M. D., Fairfield; and Dr. Morrell. Alternates: Kurt A. Sommerfeld, M. D., Gardiner; Kenneth W. Sewall, M. D., Waterville; Norman B. Murphy, M. D., Augusta; Aaron Cook, M. D., Waterville; and John F. Reynolds, M. D., Waterville.

The retiring President, Dr. Harold E. Small, made a few brief remarks, to the effect that we would be well advised to give serious thought and action to doing something positive toward better public relations.

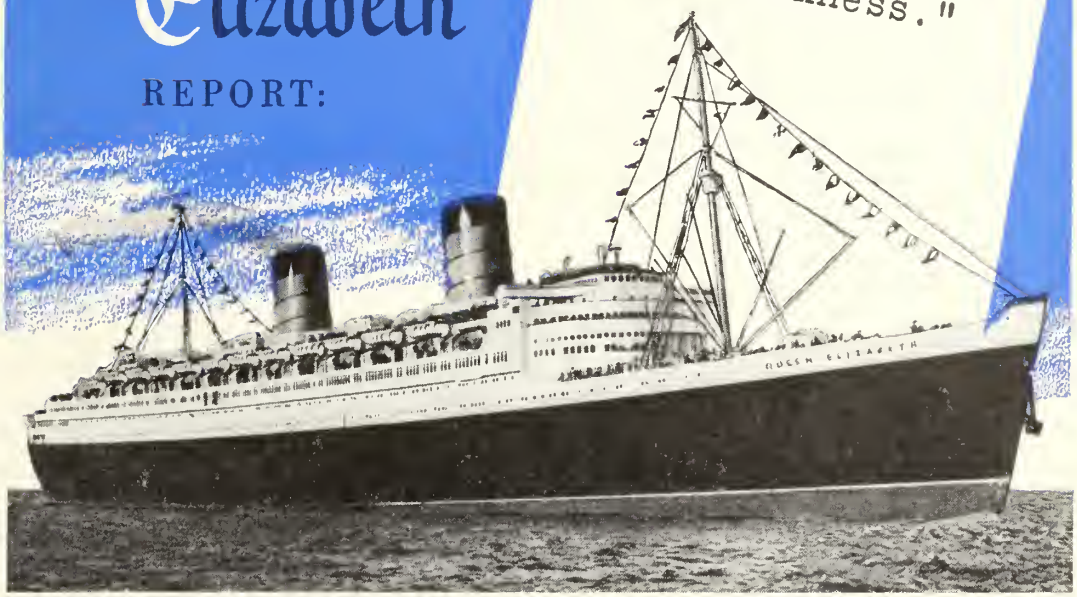
Drs. Matthias Marquardt and Arnold W. Moore of the Augusta State Hospital, speakers of the evening, were introduced by Dr. Sleeper, Hospital Superintendent.

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SUBSTANTIATING the findings of American investigators[1-3] on the effectiveness of Dramamine in the prevention and control of motion sickness, the ship's surgeons[4] of the world's largest ship report their findings in a letter to the British Medical Journal:

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

1. Gay, L. N., and Carliner, P. E.: The Prevention and Treatment of Motion Sickness: I. Seasickness, Bull. Johns Hopkins Hosp. *84*:470 (May) 1949.

2. Strickland, B. A., and Hahn, G. L.: The Effectiveness of Dramamine in the Prevention of Airsickness. Science *109*:359 (April 8) 1949.

3. Lederer, L. G.; Kidera, G. J., and Tuttle, A. D.: Medical Aspects of Passenger Flight in Commercial Airlines, presented at the Aero Medical Association Convention, New York, N. Y., (Aug. 31) 1949.

4. Rust, S. M., and Fosbery, F. W. A.: Prevention of Seasickness (Correspondence), Brit. M. J. 2:98 (July 9) 1949.

Dr. Moore discussed in a scholarly manner, lung abscesses.

Dr. Marquardt spoke on "Dementia Praecox." In discussing the use of electric and insulin shock therapy, he stated that best results are obtained when the methods are used in conjunction. He said that the prognosis is unpredictable, results often disappointing and sometimes dramatic.

A. H. Morrell, M. D.,
*Secretary.*

## Somerset

A regular meeting of the Somerset County Medical Association was held December 20, 1949. Dr. John Friend of North Anson, and Dr. William B. Grow of Fairfield, were admitted to membership.

Dr. Robert S. Schwarb of the Massachusetts General Hospital, Dr. John S. Prichard, visiting neurologist from England, and Dr. Richard C. Wadsworth of Bangor, discussed a patient with manalia poison with neurological complications. Dr. Wadsworth presented a similar problem after which Dr. Schwarb spoke at some length on neurological problems in general.

H. Carl Amrein, M. D.,
*Secretary.*

## New Members

### Cumberland

*Harvey B. Ansell, M. D.,* 39 Deering St., Portland (By transfer from Connecticut State Medical Society).

*Louis Bachrach, M. D.,* Brunswick.

*Charles P. Clarkin, M. D.,* 131 State St., Portland.

*Francis H. Fox, M. D.,* 83 West St., Portland.

*Henry A. Hudson, M. D.,* Bridgton (By transfer from Massachusetts Medical Society).

*Otis F. Jillson, M. D.,* 32 Deering St., Portland (By transfer from Massachusetts Medical Society).

*William L. MacVane, Jr., M. D.,* 211 State St., Portland.

*George L. Temple,* M. D., 22 Arsenal St., Portland

### Franklin

*Wallace H. Duffy, M. D.*

### Kennebec

*Stanley C. Beckerman, M. D.,* Waterville.

*Frederick Champlin, M. D.,* Waterville.

*Valentine J. Moore, M. D.,* Waterville.

### Penobscot

*Mary M. Dietrich, M. D.,* South Brewer.

*Harold A. Pooler, M. D.,* State Hospital, Bangor.

### Somerset

*John Friend, M. D.,* North Anson.

*William B. Grow, M. D.,* Central Maine Sanatorium, Fairfield (By transfer from Aroostook County Medical Society).

### Washington

*Harold G. Sears, M. D.,* Woodland.

# NEWS AND NOTES

### State of Maine
### Board of Registration of Medicine

Adam P. Leighton, M. D., 192 State Street, Portland, Maine, Secretary.

List of physicians licensed in Maine — November 9, 1949.

*Through Examination*

Allen Rogers Barrow, M. D., 19 Bay State Road, Boston, Mass.

Albert A. Elson, M. D., 18 West 70th Street, New York 23, N. Y.

George Edward Foster, M. D., P. O. Box 550, Edmundston, N. B.

Frederick Sebastian Ranno, M. D., 463 King Avenue, Bronx 64, N. Y.

Eugene Walter Skwarok, M. D., Maine General Hospital, Portland, Me.

John Henry Smyth, M. D., P. O. Box 960, Edmundston, N. B.

*Through Reciprocity*

Robert W. Agan, M. D., Maine General Hospital, Portland, Me.

Richard A. Bragdon, M. D., 425 Main Street, Cumberland Mills, Me.

Thomas Stephen Conroy, M. D., Route No. 1, Box 193, Kittery, Me.

Frank S. Damazo, Jr., M. D., 147 Islington St., Toledo, Ohio.

Eli A. Etscovitz, M. D., Fort Kent, Me.

William Samuel Levy, M. D., 70 Main Street, Woonsocket, R. I.

Wolfram George Locher, M. D., 315 Sycamore Road, West Reading, Pa.

Marion C. Loizeaux, M. D., 87 Gage Street, Augusta, Me.

Harold Falle Rheinlander, M. D., Eastern Maine General Hospital, Bangor, Me.

Robert Foster Russell, M. D., Eastern Maine General Hospital, Bangor, Me.

Allen Irving Saunders, M. D., P. O. Box 724, Augusta, Me.

Ivan Clair Schmidt, M. D., 30 Bennet St., Boston, Mass.

Meyer Silvert, M. D., 360 Riverside Drive, New York 25, N. Y.

Philip Troen, M. D., Boston City Hospital, Boston, Mass.

Dorothy Dean Stump Waterman, M. D., North Haven, Me.

Richard Douglas Waterman, M. D., North Haven, Me.

Marion Wallace Westermeyer, M. D., 108 Front St., Bath, Me.

### Department of Health and Welfare
### Services for Crippled Children
### Clinic Schedule — 1950

Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

### Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

### Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

### Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.


:-: *FOR SALE* :-:

Instruments, office furniture and equipment, belonging to the late Dr. Eaton Shaw Lothrop. Inventory price used in appraisal will be used if sold in one transaction. For complete information get in touch with Mrs. Lothrop, Cape Elizabeth, Maine.


*The Problem of Hospital Care for the Indigent Patient in Maine—Continued from page 20*

With all our hospitals doing their full share of caring for the indigent the burden would be spread more equitably. This, incidentally, is very likely to influence the adoption of a policy of paying for hospital care at cost. Correction of this situation would at least help with our immediate problem and facilitate the development of an adequate program of hospital care of the indigent.

Then the Hospital Association, and every individual Hospital, should start now on a program of Public Relations aimed at acquainting our citizens with the exact situation, and the necessity and the fairness of general tax funds being provided to pay for hospital care of the indigent at cost, no more but no less. Every possible medium of publicity: speakers, radio, press and especially the Country weeklies, should be made use of. When the Public understands the situation, when the man in the street or on the farm, or in the mill knows the facts it should not be difficult to correct this situation. But it is futile and foolish to wait until the Legislature is elected and meets. An educational campaign of this kind takes time. It must reach into every community. The person living in Presque Isle may not be especially concerned about the hospital in Lewiston or Portland, and the man in Bridgton may not become concerned about the financial status of a hospital in Augusta, Bangor, or Waterville, but bring it home to him, make him see it as it concerns his own community hospital and he becomes vitally interested. The demand must come from the grass-roots and it will be forthcoming if we only tell the people the story.

### Conclusions

1. Hospitals no longer can depend upon contributions from philanthropic sources but must be prepared to meet expenses from income.

2. Charges should be based upon accurate accounting. Ward rates should reflect actual cost to the hospital.

3. Care of the indigent should be paid for by the State or Municipality at cost, no more but no less. Free professional service should be provided for these cases. Hospitals should insist on this service as a pre-requisite for Staff Membership.

4. A public campaign of education should be inaugurated at once to the end that our citizens know the situation and insist upon payment from tax funds for the care of indigents, at cost.





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*Clinico-Pathological Exercise—Continued from page 22*

aggravated by eating, and this patient states that eating did not aggravate the pain. The palpable mass which is felt in the right lower quadrant in regional ileocolitis is usually described as being elongated, resembling more the bologna sausage type, rather than a circumscribed tumor of the citrus fruit variety, such as described here. Also, one would feel that this patient should have passed some mucus and probably blood in her stools. I feel safe, therefore, in ruling out regional ileocolitis.

The last diagnosis that I have to offer in this case is hypertrophic intestinal tuberculosis. In this disease the common site is the ileocecal region. The history and physical examination in this case is quite characteristic of tuberculosis of the ileocecal region. The chronic intestinal complaints will fit into this condition. The history of change in bowel habits, without the presence of mucus or blood, is also characteristic of regional tuberculosis, and although the history states that there is no tuberculosis in the family, it does not state whether or not the patient had tuberculosis during her lifetime.

The blood picture is rather suggestive, likewise. Here there is a mild degree of anemia, a normal or slightly low white cell count, with a slight increase in lymphocytes. These findings are consistent with hypertrophic intestinal tuberculosis. The presence of a paupable mass at this time also is a positive finding. The examination and description of the pathological findings at the time of operation three years before, is to me rather suggestive of changes consistent with a regional tuberculosis. I therefore conclude my discussion by offering as the diagnosis in this case hypertrophic intestinal tuberculosis.

*Dr. McManamy's Diagnosis:* Hypertrophic intestinal tuberculosis.

*Dr. Ralf Martin:* Is there anything more in the operative note as to what the surgeon did about this mass?

*Dr. Porter:* No.

*Dr. McManamy:* Was the appendix stump buried?

*Dr. Porter:* I do not know that, but I think it might have been. The lumen of the appendix was obliterated, and had been the site of previous inflammation.

*Dr. Louis Asali:* Did she have her ovaries removed at the time of hysterectomy?

*Dr. Porter:* I do not know.

*Dr. Asali:* She could have a fibroma of the ovaries.

*Dr. Porter:* I think she could have, but according to the operative note, the pathology is pretty well identified with the small intestine.

*Dr. Isaac Webber:* Did the surgeon leave a sponge in? I think we should also consider the possibility of a mesenteric cyst.

*Dr. Jack Spencer:* Did the appendix look as though it had perforated?

*Dr. Porter:* No.

*Dr. Frederick Clark:* How about enteritis of some description from the reaction to radium, although the period of time was rather great?

*Dr. Porter:* I think most of these cases occur between two and three years following radiation.

*Dr. Martin:* I would like to suggest the diagnosis of carcinoid.

*Dr. James Parker:* Is there anything on the chart as to whether there was a febrile reaction the second time, or any comment made on the hemoglobin the first time?

*Dr. Porter:* There were only two counts — just a white blood count and a hemoglobin.

*Anatomical Diagnosis:*

1. Argentaffinoma (carcinoid) of terminal ileum.

*Dr. Porter:* The specimen as received in the laboratory consisted of a segment of terminal ileum and ascending colon. In the ileum a tumor was encountered, which projected into the lumen, was not annular, but produced a marked degree of narrowing of the lumen by knuckling of the intestine. The tumor had gone through the serosal surfaces towards the mesentery, and adjacent serosal surfaces had become adherent. There was no evidence of regional metastases. These tumors are most frequently found in the appendix,[1] occurring about once in every 300 appendices removed surgically. They are much less frequently found in other portions of the intestinal tract, have been described in the stomach, small intestine, and large intestine. They are very slowly-growing, and cases which have produced metastases are not common.

References

1. "Argentaffine Tumors," Porter, J. E., and Whalen, C. S., *American Journal of Cancer,* Vol. 36, page 343, 1939.

***Your Membership Expired December 31st***

***Pay Your 1950 State and County Dues Promptly to your County Secretary***

# The Journal
## of the
# Maine Medical Association

Volume Forty-One | Portland, Maine, February, 1950 | No. 2


## CALCIUM DEFICIENCY IN INFANTS AND CHILDREN


George E. Dash, M. D., St. Andrews Hospital


The purpose of this paper is to present evidences of calcium deficiency found in many growing children; to show that this has resulted from deficiency of calcium in their diets, their inability to metabolize what calcium they do get, and some results following the administration of calcium.

Calcium occurs in the human body to a far greater extent than any other positive mineral element. 99 per cent is in the form of phosphates and carbonates in the skeletal structure, the balance, 1%, is mostly in the blood plasma where about half is bound with protein and half in diffusible form, the remainder in the spinal fluid and other interstitial fluids of the body also in diffusible form.

*The function of calcium:* It is the material structure of bones and teeth, it supplies ions which function in muscle contraction and the control of irritability of the nerve cells, it plays an important part in coagulation of blood and milk, and of normal heart action.

The intake should be from 725 mg. per day in infancy to 1200 mg. at 10 to 12 years, of which 140 to 300 mg. should be retained. Serum levels are relatively constant, only slight rises being noted after ingestion, showing that it is rapidly deposited in bone and other tissues after being absorbed in the blood stream.

The older textbooks on Pediatrics, Holt, Chapin, Pisek, Rachford and others, divided the symptoms of rickets into bony and nervous; for some reason colored infants showed a predilection to the bony type, the white child more often the nervous. In spite of our routine administration of Cod Liver Oil, we still see proven cases of rickets, as was reported in a recent issue of this Journal. The nervous manifestations are even more frequently seen but too often overlooked.

The basic factor in calcium deficiency is the lack of calcium in the soil; we have been running it out as positively as we are running out our coal. Each animal, cow, horse, pig, sheep, even poultry, grown on a farm takes from it the calcium of its bone and muscle; only 20 per cent of that taken is returned to the soil in the form of urine and manure, the remaining 80 per cent taken away. There is a well-known movement on the part of agricultural authorities to replace this as witnessed by the tons of lime now furnished by the federal government. Massachusetts expects to furnish 80,000 tons next year as against some 15,000 tons in the past. But far too many farmers have not availed themselves of this material. We have known farms in Central Ohio, the finest farm lands of the state, which required up to seven tons of lime per acre to replace what had

been taken out. A forcible illustration of the value of calcium in soil is found in the blue grass region of Kentucky. It is the subsurface limestone that imparts the peculiar color and texture to the blue-grass and its high calcium content, horses grazing on this have a tougher bone and muscle structure than most. Blue grass, and through it, calcium, has made the Kentucky race horse what it is.

We have recognized the need of calcium in pregnant women, its administration now is almost a routine measure. We know that the teeth have a marked tendency to decay, nature taking the calcium from them to give to the developing fetus. Pregnant sows have been known to gnaw the concrete floors of their pens to obtain calcium for their litters. Calcium is most needed and most absorbed in the later periods of pregnancy, prematures always show some deficiency. In cases of multiple pregnancy the available calcium must be divided. It is a well known fact that twins are more liable to show rachitic evidence than infants of single birth. The question has often arisen, "Why is the administration of calcium not continued after birth?" Surely the need in the growing infant is almost if not fully as great.

Going back to the textbooks of forty years ago, we find described the group of nervous manifestations many or all of which we see today in spite of our routine use of Cod Liver Oil and the various vitamin D preparations. These are blue sclera, head sweating, head rolling with the attendant bald spot on the occiput, exaggerated reflexes and a general hyperkinetic condition. These children do everything to excess — play or work, they tire easily, and peculiarly usually have a high I. Q., do well in school but are unsettled and unstable. The skin is often clammy, and may have a peculiar mottling. They also show marked allergic tendencies. The nervous irritability is often the factor in convulsions in the more severe cases, particularly in those marking the onset of a contagious disease. The teeth decay early, it is rare indeed today to find a child whose temporary teeth have remained intact until the eruption of the permanent ones. Most often one will note with the above nervous symptoms some evidence of bone involvement — rachitic enlargement of the ends of the long bones particularly the radius, chest deformities such as flattening, rachitic rosary, Harrison's groove, and occasionally a funnel chest and bow legs. Knock knees and other more marked rachitic evidences are seen but not so frequently.

At present we are unable to confirm positively the presence of this deficiency by laboratory procedures. Blood calcium tests are notoriously unreliable except in severe cases such as tetany. This is probably because of the low normal proportion present (less than ½ per cent diffusible) and also because of its rapid absorption as noted above. Some work has been done in determining the calcium output in relation to the intake, this type of child almost invariably shows a lower calcium retention than normal. Because of lack of definite laboratory confirmation the question must still be empirical — must be confirmed by therapeutic result, hence is admittedly controversial.

Empirically even in the absence of laboratory proof, these cases do well on the administration of some form of calcium, with of course Vitamin D. The latter alone is apparently insufficient in the more severe cases, simply stopping a leak will not fill a bucket.

There are also many pediatric conditions that are benefited by calcium administration. Whether these are due to calcium deficiency is not known, it may be a factor. Roughly in any spasmodic tendency — so-called idiopathic, infantile convulsions, epilepsy (especially petit mal), calcium is given as an adjunct to dilantin and other more specific therapy. In allergies, bronchial asthma, laryngismus stridulous, calcium is given simply as a useful adjunct to the usual therapy.

Conclusions: We have attempted to present, informally and possibly unscientifically, the following:

1. There is abundant evidence that there is a calcium deficiency in most of our soil. That this is reflected in a typical group of symptoms in infants and younger children.

2. That the proof of this deficiency is almost entirely clinical, laboratory procedures are, at present, inadequate to show them.

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No subject is more intimately connected with the happiness and prosperity of a people than the degree of public health that they enjoy. — Lemuel Shattuck, Chairman of the Massachusetts Sanitary Commission, 1851.

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The nurse plays a particularly vital role in helping the patient to gain psychological acceptance of the diagnosis and in his psychological and emotional preparation for hospitalization. Both in what she tells the patient and in her attitude toward the patient as a person, the nurse can be highly instrumental in laying the foundation for a successful hospitalization experience for the tuberculous patient. Especially during the course of teaching the patient protective measures for himself and his family, the nurse has the opportunity of strengthening the patient's attitude toward hospitalization. — William B. Tollen, Ph. D., *VA Pamphlet* 10-27, Oct., 1948.

# INTRA-ABDOMINAL HEMORRHAGE

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In this paper three cases of hemorrhage are presented, all of them associated with pregnancy. The first case is one of ectopic pregnancy, the second, ruptured bicornate uterus and the third, excessive hemorrhage into a follicular retention cyst. All of these cases were in shock at the time of admission to the hospital. Immediate treatment for shock was started. Operation was not undertaken until the patient had rallied sufficiently to offer reasonable hope of standing the operation. In one case (that of ruptured uterus), the blood pressure had failed to such a degree that it was impossible to perform a veno puncture and it was necessary to cut down on a vein and insert a cannula.

The first case is a 36-year-old housewife admitted to St. Andrews Hospital, Boothbay Harbor, Maine, 11-17-1948, at 11.00 A. M. Operated upon 11-17-1948, at 12.50 P. M.

Discharged December 1, 1948.

*Chief Complaint:* Cramplike pains in the lower abdomen of twenty-four hours duration.

*Present Illness:* Patient states she started having cramps twenty-four hours before admission which were very sharp. She gives a history of having missed one menstrual period. She had one full-term pregnancy eleven years ago and one stillborn birth nine years ago. In 1938, she had a thyroidectomy for toxic goiter. Otherwise, no surgery has been done.

*Past History:* She has had the usual childhood diseases and had scarlet fever as a child. Menstrual periods began age 15, and for one year she had irregular periods. After that they have been perfectly regular. She is married. Her husband is 46, living and well.

*Family History:* Mother, aged 61, living and well. Father, aged 56, died of rheumatic fever. One brother, aged 24, living and well. Three sisters, aged 29, 31 and 33, living and well. No history of hereditary diseases known in family.

*Physical Examination:* Temperature 97, pulse 90, thready and easily compressed, respirations 22, blood pressure 80/60. The patient is acutely ill, complaining of severe pain of a colicky nature in the lower abdomen and of feeling faint, especially when she tries to get up. Hair is black and of good texture. Eyes are blue and there is moderate exophthalmos. Sclera clear, pupils round, regular and react to light and accommodation. No nystagmus. Fundi within normal limits. Nostrils clear, no obstruction. Ears: no cerumen. Drums clear, no obstruction. Mouth: Mucus membrane pale and dry. Tongue extremely dry and pale. Teeth are good. Neck: No abnormal pulsations. There is a well-healed operative thyroid scar. No trachial deviation. Chest: Lung fields are clear and resonant throughout. Expansion is fair. Vesicular breathing. No rales. Breasts: Well developed, no masses. Heart: no enlargement. Sounds are of poor quality and distant. Rhythm is regular. No murmurs heard. Blood pressure is 80/60. Pulse 90, soft and thready. Abdomen: Full. Has a doughlike feel. There is marked tenderness in both lower quadrants, possibly more pronounced on the left. Bimanual examination reveals a softening of the cervix and a feeling of fullness in both adnexal regions. Uterus not easily made out. Extreme tenderness in both adnexal regions. Rectal examination reveals a soft, tender mass in the cul-de-sac. Genitourinary: No kidney, ureter or bladder tenderness. Skin: Clear throughout. Nail beds are very pale. Bones and joints: No swelling, deformity or limitation of motion. Neuromuscular: Reflexes are normal. Muscles of good tone and well developed.

*Clinical Laboratory:* Urine: yellow, cloudy, acid. Specific gravity 1.032, albumin slightest possible trace, no sugar. Rare white blood cells, few epithelial cells. A few hyalin casts. Blood count on arrival in the hospital was as follows: Red blood cells 3,060,000 with 67% hemoglobin. White blood cells 16,550 with differential of 82% polys and 16% lymphs. One hour after admission red blood cells were 3,010,000 with 55% hemoglobin. Hinton is negative.

*Preoperative Diagnosis:* Ectopic pregnancy.

*Preoperative Care:* Patient was given 1000 cc.'s of 5% glucose intravenously and 1 unit of blood plasma. Also, blood was taken for typing.

*Detailed Description of Operative Technique:* Under a general anesthesia, the abdomen was prepared with merthiolate and a lower midline incision was made. The abdomen was found to be full of blood and blood clots, and the products of a two months' pregnancy were found in the pelvis. There was a rupture of the left salpinx. A small artery was bleeding profusely on the uterine side of the tear. The free fluid and clots were removed by suction and manually. A left salpingectomy was done and the mesosalpinx was sutured, thus controlling all bleeding. The raw surfaces were peritonealized and the abdomen was closed in layers using No. 00 chromic catgut on the peritoneum, No. 0 chromic catgut interrupted on the fascia and stainless steel wire interrupted on the skin.

*Anesthetic:* Ether. Patient stood the operation well.

*Postoperative Care:* Patient returned to her room in fair condition. During the operation she received one unit of blood plasma and immediately postoperatively she received 500 cc.'s of citrated blood. After regaining consciousness, she was given continuous oxygen for the next twenty-four hours.

*Description of Tissue Removed:* Tube measuring 8 cms. by .6 cms. grossly not remarkable. Microscopic examination shows diffuse hemorrhage and a polymorphonuclear infiltration and rare decidual cells.

*Diagnosis:* Tubal pregnancy.

*Final Diagnosis:* Ruptured ectopic pregnancy.

*Progress Notes:*

First day postoperative. Temperature 100, pulse 108, respirations 20. Abdomen flat. Patient has no complaints. She was started on prostigmine ampules, 1 every six hours for six doses.

Third day postoperative. Temperature, pulse and respirations normal. No complaints.

Sixth day postoperative. Sutures were removed. Incision well healed. No infection. Patient up and around.

Fourteenth day postoperative. May go home today. Uneventful recovery following ruptured ectopic pregnancy.

*Condition on Discharge:* Improved.

*Follow-up Notes Since Leaving Hospital:* 8-11-1949. Patient has no complaints. No hernia and incision is well healed. Abdomen firm.

The second case is a 21-year-old housewife admitted to St. Andrews Hospital, Boothbay Harbor, Maine, 10-16-1947, at 3.00 P. M. Operated upon 10-16-1947.

Discharged October 30, 1947.

*Chief Complaint:* Pains in the lower abdomen and a feeling of marked fatigue.

*Present Illness:* Patient states that she has been visiting her family physician every month and is known to be five months' pregnant. She had a perfectly normal course until two days before admission when she had a very severe pain in the left lower quadrant which lasted until four hours before admission.

*Past History:* She had one still-born birth 8½ months before the present pregnancy. Surgically, she had an appendectomy at the age of fourteen and a "cyst removed from an ovary" at the age of 20. No serious medical illnesses and no accidents.

*Family History:* Mother is 57, living and well. Father aged 54 is living and well. Five brothers, aged 30, 32, 34, 36 and 38, all living and well. No history of hereditary disease in the family.

*Physical Examination:* Temperature 97, pulse 120, respirations 20. Blood pressure is 58/30. Patient is in extreme shock. Lips are held tightly together and are very dry and pale. Hair is blonde and of good texture. Eyes are blue. Pupils react to light and accommodation. Conjunctiva pale. Sclera shows a slightly yellowish tint. Nose: Nostrils are pinched. Septum is intact. Ears: No cerumen. Drums intact. Mouth: Teeth are good. Tongue is very pale. Mucus membrane of the lips and the lining of the oral cavity pale and dry. Trachea is in the midline. No abnormal pulsations. Thyroid is small. Chest: Lung fields are clear. No abnormal percussion note changes. No rales. Respirations are shallow. Breasts are well developed. No masses and no tenderness. Heart: No enlargement. Sounds are of poor quality and distant. Blood pressure is 58/30, pulse 120, equal, weak and easily collapsed. Abdomen: Distended, soft and tender. There is a noticeable mass to the left of the midline. There is extreme tenderness with muscle spasm. Vaginal: Slight vaginal bleeding, and there is a mass in the posterior cul-de-sac. Rectal: On rectal examination the cervix is soft and the uterus is not made out. Skin is very pale, cold and clammy. There is a profuse cold sweat and the nail beds are very pale. Genito-urinary: No kidney, ureter or bladder tenderness. Bones and joints: Patient is resting in bed with her knees flexed. No limitation of motion. No swelling. Neuro-muscular: Reflexes are normal. Muscles are well developed and of good tone.

*Clinical Laboratory:* Urine: orange, cloudy, alkaline. Specific gravity was 1.025. Albumin, slight trace. Sugar, negative. White blood cells, loaded. Red blood cells, negative. Epithelial cells, few. On admission, the red blood cells were 2,430,000 with 54% hemoglobin and white blood cells were 14,850. On the second postoperative day, after two transfusions and two units of plasma, the red blood cells were 1,630,000 with 41% hemoglobin. After four more transfusions, the red blood cells were 2,300,000 with 54% hemoglobin and on the day before her discharge from the hospital, red blood cells were 3,360,000 with 65% hemoglobin.

*Preoperative Diagnosis:* Intra-abdominal hemorrhage of unknown origin.

*Preoperative Care:* Patient was immediately placed in Trendelenburg position and given extra blankets and hot water bottles. It was impossible to get into a vein so a hypodermoclysis was started of 1000 cc.'s of 5% glucose and saline. Later a vein was cut down on and a cannula inserted and blood obtained for blood typing. Intravenous blood plasma was started followed by 500 cc.'s of whole blood.

*Detailed Description of Operative Technique:* When her blood pressure reached 78/50 she was taken to the operating room with the blood transfusion running in and under a general anesthesia,

the abdomen was prepared with merthiolate. A left paramedian incision was made and the abdomen was found to be full of blood. A five months' fetus and attached placenta were found floating around in the blood. Upon delivery of the uterus, it was found that it was a bicornate uterus and the body of the left uterus was ruptured. There was active bleeding around the edges of this opening. The bodies of the uteri apparently opened into the same cervix. The fetus and membranes were removed along with organized clots and free fluid. The body of the left uterus with its tube and ovary were removed by the ligation cut method supra-cervically. The left round ligament was sutured to the body of the right uterus. All bleeding was controlled and the raw surfaces peritonealized. The abdomen was closed in layers wth No. 00 chronic catgut on the peritoneum, No. 0 chromic catgut on the fascia, and black silk interrupted on the skin.

*Anesthetic:* Ether. Patient stood the operation fairly well.

*Postoperative Care:* Patient left the operating room in fair condition. Blood pressure was 100/64, pulse 100, respirations 28. She was placed in continuous oxygen and continued to receive a transfusion.

*Final Diagnosis:* A ruptured bicornate uterus.

*Progress Notes:*

First day postoperative. Blood pressure 110/80, temperature 99.4, pulse 112. There was no vaginal staining. No complaints. There was slight distention high up in the abdomen. She was in semi-Fowler's position and got continuous oxygen by nasal catheter for the first twenty-four hours. Also, for the first twenty-four hours she received another 500 cc.'s of whole blood.

Second postoperative day. Patient was up on the side of the bed feeling quite well but pale and weak. Temperature 100, pulse 120, respirations 20.

Seventh postoperative day. Up in a chair today. Feeling quite well. She received a citrate blood transfusion on the third, fifth, seventh and tenth postoperative days because of her severe secondary anemia. She also received 1 cc. of liver extract daily intramuscularly. Sutures were removed on the seventh postoperative day and she was discharged to her home on the fourteenth postoperative day.

*Condition on Discharge:* Improved.

*Follow-up Notes Since Leaving Hospital:*

1-30-1948. Patient returned and examination revealed that the remaining uterus was in good position. Incision was well healed and no hernia was present.

The third case is a 22-year-old housewife, who was admitted to St. Andrews Hospital, Boothbay Harbor, Maine, 10-8-1948. Operated upon 10-8-1948.

Discharged October 18, 1948.

*Chief Complaint:* Pain in the lower right abdomen.

*Present Illness:* Patient states she started having cramps about two hours before admission to the hospital. She gave a history of having missed one period.

*Past History:* She has had one full-term pregnancy five years ago. No miscarriages, no abortions. She has had no operations, no serious medical illnesses or accidents. She has had the usual childhood diseases. Her menstrual periods began age 15 and were regular. She is married and her husband is 35, in good health.

*Family History:* Father, aged 43, is in good health. Mother, aged 35, is living and well. Three sisters, living and well.

*Physical Examination:* Temperature is 97, pulse 90, respirations 20. Blood pressure is 90/60. Patient is acutely ill, pale, and her pulse is weak and thready. Hair is black and of good texture. Eyes are brown, conjunctiva pale. Pupils react to light and accommodation. Nose: Good breathing spaces. Membrane slightly injected. Teeth: Poor. Ears: No discharge, drums intact. Neck: No abnormal pulsations. Trachea is in the midline. Thyroid not made out. Chest: Breasts are flabby. No masses felt. Nipples show no discharge and no bleeding. Lungs: Clear and resonant throughout. Expansion is fair. Vesicular breathing. No rales. Heart: Not enlarged, no murmurs. No cyanosis, edema or dyspnea. Abdomen: Liver is felt about one inch above the costal margin. Spleen not made out. No muscle spasm or rigidity noted but there is marked tenderness in the lower right quadrant around McBurney's point. There is a definite psoas muscle sign. No scars, no hernia. Vaginal: Examination reveals that the uterus is in the midline. There is a boggy sensation more marked on the right than the left and there is right-sided tenderness in the cul-de-sac. Rectal: No hemorrhoids, no rectal bleeding or rectal masses. There is tenderness in the cul-de-sac. Genito-urinary: No kidney, ureter or bladder tenderness. Skin: Clear throughout, but pale and cold. Nail beds are very pale. Bones and joints: No swelling, deformity or limitation of motion. Neuromuscular: Reflexes are normal. Muscles well developed and of good tone.

*Clinical Laboratory:* Urine: yellow, cloudy, acid. Specific gravity 1.005, albumin 0, sugar 0. White blood cells rare, epithelial cells, many. Blood count on admission was 3,720,000 with 78% hemoglobin. White blood cells 18,450. Four hours later, red blood cells were 3,200,000 with 66% hemoglobin.

*Preoperative Diagnosis:* Intra-abdominal bleeding of unknown origin, ectopic pregnancy, twisted ovarian cyst, salpingitis and appendicitis are all considered. The important thing is that the patient appears to be bleeding and she will be operated upon as soon as her condition improves.

*Continued on page 39*

# OPHTHALMOSCOPIC DIAGNOSIS OF IMPORTANCE TO THE MEDICAL MAN AS SEEN IN THE RETINAL BLOOD VESSELS*

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Once before the statement was made that "each time an ophthalmologist has the privilege of talking before a group of medical men, not limited to his specialty in their work, he decides to consider the retinal blood vessels." The literature has demonstrated this rather conclusively.

Ophthalmology should be considered as a branch of internal medicine. It is true that ophthalmology has a surgical side as a specialty, but so also has gastroenterology and neurology. Excluding that aspect of ophthalmology, this specialty, — diseases of the eye, — is so clearly allied to internal medicine that the two cannot be separated, one from the other.

The ophthalmoscope, in medical diagnosis, is probably next to importance to the microscope. There is no more difficulty in learning to use the first than that connected with the second.

When discussing pathology of the ocular fundi one must, of necessity, differentiate between basic pathology of the choroid and the retina, and in turn these two from pathology of the optic nerve, remembering that this nerve consists of the terminal centripetally directed nerve fibers from the retina. By contiguity and continuity of these tissues, pathology in one must of necessity be followed by characteristic pathological changes in the others. In addition, each individual structure controls the type of pathology possible, and at the same time modifies the essential characteristics which develop from similar basic etiological factors.

The choroid is an organ, fundamentally vascular as an anatomic characteristic, and from the standpoint of this paper is concerned with morbidity seen in and transmitted by the blood stream as well as the macroscopic and microscopic alterations common to the blood vessels themselves — arteries and arterioles, veins and venules, as well as the capillaries. In addition to this, because the choroid is the most important nutrient coat of the eye, it is functionally the sine qua non of retinal integrity, hence, of vision. Diseases which affect it may also involve the retina even to the subsequent destruction of the retina.

The retina (with a blood vessel system peculiarly its own) of neuro-ectodermic origin, presents not only the changes from blood vessel pathology (as just discussed relative to the choroid), but also those conditions to which nerve tissue is heir. This includes nerve tissue cells and fibers, both supportive and conductive, as each is individually involved, regardless of the basic etiology. The large ganglion cell bodies of the retina, the source of the optic nerve fibers to the external geniculate body, will show a selective affinity to various etiological factors quite different from that seen in a different portion of the retina, as, for example, the rods and cones and the contiguous pigmented neuro-epithelium. Even the different types of nerve fibers themselves, within the retina, as in the cerebral pathways, respond differently to different infections, to disturbed metabolic processes, and to the degenerations of senescence. The nerve fibers, both somatic and autonomic, for the iris reflex arc, and the pure visual fibers, illustrate these diverse responses.

The optic nerve must be considered, ophthalmologically, as a part of the retina, as well as a separate anatomic structure. The common finding is for pathology in one of the two to be accompanied by simultaneous and/or consequent pathology in the other. This is not necessary, however. Either may show pathological changes with the other remaining essentially normal, at least normal from an ophthalmoscopic standpoint.

*Tuberculosis:*

Tuberculous periphlebitis, tuberculous periateritis, primary retinal tuberculosis, tuberculous choroidoretinitis, the acute and chronic forms of miliary tuberculosis, primary tuberculosis of the optic nerve, massive tuberculoma of the fundus (probably an extensive form of choroidal tuberculosis), and the extension of tuberculous pathology from other ocular structures are the usually accepted tyes of this disease. Exudative retinitis, probably better known as Coats' Disease, has at times been considered a tuberculous inflammatory condition but not so by Coats himself. Leber assumed an inflammatory and necrotizing process in the retina to be the cause, but Leber's own microscopic findings eliminated such a process, and placed it in a class (shown by Elwyn), to be due either to an abnormal constitution of the blood itself, or to a primary change in the blood vessels, especially the smallest of these.

Tuberculous periphlebitis, also known, at times, as Eales' Disease, is a disease usually of the late second and third decade of life, characterized by recurrent retinal and vitreous hemorrhages, a marked proliferation of connective tissue about the retinal veins and

* Presented at Staff Meeting, St. Andrews Hospital, August, 1948.

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into the retina and results not uncommonly in blindness either by retinal separation or because of a secondary glaucoma. The course of the disease may be long in duration, with repeated recurrence and with intervals of quietude.

Schmidt called our attention to the irregular relationship this disease has to generalized tuberculosis, especially the pulmonary form. In eight such cases of retinopathy which he studied and followed, three showed tuberculosis of the lymph nodes, the possible source of the ocular infection; one case had tuberculous focus in a tonsil, and in four cases the ocular disease preceded manifestations of tuberculous pulmonary disease, in one case by as much as three years. Schultz also was certain that this disease was due to a tuberculous process in the vessel wall and he based his treatment, because of this, upon rest, diet, and tuberculin therapy. A case of this unilateral, in a male, studied microscopically, by De Long and by the author, showed well the massive perivascular changes present in the fundus. This patient has had no recurrence in his primary juvenile tuberculous condition, which was that of a cervical adenitis, nor has the left eye, for over eight years, shown any pathology.

Retinal phlebitis, limited to the central retinal vein only, has been reported, but it is a very rare condition. Retinal periarteritis has also been found, though perhaps even more rarely. In one case, reported by Muncaster and Allen, the retinal vessel pathology seemed to be precipitated by the intradermic use of tuberculin, suggesting an etiology, allergic in nature, for these vascular conditions.

Primary retinal tuberculosis and tuberculoma of the choroid, though separate entities, may be considered together for our purpose. These conditions progress to the secondary involvement of other portions of the eye, and usually end with an imperative enucleation because of caseous necrotic degeneration of the eyeball. In three cases seen by the author, two, over a period of four to six years have shown no other new clinical signs of tuberculosis. The third case progressed to extraocular extension of the tuberculoma, with severe exophthalmos, before death occurred from extensive pulmonary tuberculous pathology.

Disseminated and discreet tuberculous choroiditis, with its consequent retinal involvement, including chronic miliary tuberculosis, also including that rather interesting form of choroidoretinitis which results in the pathologic sectioning of the optic nerve fibers at the optic nerve disc margins, known as choroidoretinitis juxtapapillaris, are common diseases of the ocular fundus. No anatomic portion of the fundus is spared, and there seems to be no predilection for the ocular blood vessels. These conditions are chronic, with frequent recurrences in old lesions, and with the formation of new lesions in fresh portions of the fundus, appear in early adult life, and are apparently a bit more common in females. These conditions have as an onset a sharp inflammation, followed by self-limitation of the lesion, by necrosis of the inflammatory area and by pigment deposition. A quiescent choroidoretinitis remains, showing areas of atrophy of the retina and the choroid, the sclera being bared frequently, these lesions rimmed about with deposits of pigment, and frequently with some residual pathological vascularization. Disseminated choroidoretinitis, as outlined above, frequently fails to show other positive clinical signs or symptoms of tuberculosis. The active tuberculin skin sensitivity reactions, even in very small dilutions, and the focal reaction to these as seen in the fundus lesions indicate the etiology.

This type of fundus pathology has an unusual relationship to systemic disease. Two characteristics are outstanding. The first is the marked remedial effect which desensitization with tuberculin has upon the course and progress of these conditions — suggesting, in fact almost insisting, upon an allergic relationship between tuberculosis antibodies and the fundus pathology. The second is this: they are not an accompaniment of acute pulmonary tuberculosis. Almost twenty years of experience as an associate consulting ophthalmologist, and then later as consulting ophthalmologist to a very active Municipal Tuberculosis Hospital have failed to uncover a single such case. These years instead have shown a number of cases of acute generalized miliary tuberculosis with true miliary tubercles in the fundi. Such cases died with tuberculous meningitis.

One cannot help but agree that these varied conditions, and not including tuberculous lesions of the iris and the sclera, — though all tuberculous, are each a distinct clinical entity. One, the acute miliary type is the result of a bacteremia; the other is an allergy, and reacts as such; one results in a classical caseation necrosis; the other in the formation of sheets and bands of scar tissue without intervening or preliminary necrosis. One involves only the blood vessels, an artery or the veins. Each of these has its characteristic appearance, and its individual course. Considering this, there is some reason for the lack of unanimity among ophthalmologists in the treatment of these allied but varied conditions.

*Syphilis:*

Syphilis, like tuberculosis, can involve practically each different anatomical structure of the eyeball in a clear-cut distinct pathological entity. The changes seen in the fundi result from either a congenital or an acquired luetic infection. Each is fairly distinctive in character. Syphilitic choroidoretinitis may be a manifestation of secondary lues, though it usually is tertiary. Intraocular gummata are still seen occa-

sionally, though this type of case and that disease, seen from secondary lues, is becoming rather rare — probably because of the recent advances in therapy and the success from those.

Neuritis of the optic nerve may be a primary ocular condition resulting in a postneuritic type of optic nerve atrophy, also a descending type of optic nerve atrophy may appear, originating in the syphilitic cerebrospinal pathology of taboparesis.

There has been some controversy as to whether the retinal fundus conditions (excluding pathology of the optic nerve) are either choroiditic in character, with secondary retinal involvement, or the reverse. Nettleship believes that both occur at different times. Clinically one can see cases in which the retinal vessels show syphilitic inflammation with the choroid free from pathology. Igersheimer's opinion is that in syphilis the organisms are transmitted by the blood stream and cause the retinal, choroidal, neural, or vessel pathology. Thus there occurs from the direct action of the organisms, or through their toxins, an inflammatory process which extends to contiguous tissues. Extensive, but somewhat distant pathological changes, as in syphilitic pigmentory degeneration, are due probably to the damaged nutrition of the retina and the choroid, through primary vessel pathology.

Similarly, there is logical controversy as to the development of the optic nerve pathology. One wonders whether it is vascular in nature, toxic from the products of the spirochaetae, or a combination of these or less understood processes.

A disease of the fundus is not the most common ocular manifestation of congenital lues. Interstitial keratitis is certainly much more frequent. This disease seems to be an allergic manifestation of congenital lues judging from the vagaries connected with its onset, its course, and the responses this diseased condition shows to various non-specific forms of treatment. A similar group of ocular conditions has been mentioned in regard to tuberculosis. It is perhaps significant to this also that luetic corneal pathology and luetic vessel pathology, both present in the same case simultaneously, are uncommon findings. This should exclude those cases of peripheral degeneration of the retina with the other changes consequent to the iridocyclitis so often an accompaniment of interstitial keratitis.

The so-called salt and pepper fundus, very well named (as to its appearance), is perhaps outstanding in the matter of incidence. It is a disease of the pigment epithelium and according to Elwyn is a common accompaniment to interstitial keratitis. (Before that confirmation by Elwyn this was suspected by the author upon some clinical experience.) The progress of this condition is slow, though its onset is very early in the child's life. Vision is involved, but frequently only to a rather slight extent. The disease may remain unchanged for many years, and antiluetic treatment seems to affect it but very little.

Another form of congenital luetic fundus disease is that of secondary retinitis pigmentosa, in its visual impairment, to some extent in the visual field changes present, and to a great extent in the anatomic distribution of the pathology. The appearance of the pathology, however, is quite dissimilar from true pigmentary degeneration and should not confuse the ophthalmologist. The prognosis in this type of disease is absolutely bad. The disease changes are a manifestation of severe choroidoretinitis, with involvement of the pigment epithelium. An obliterative arteritis of the retinal vessels occurs and with it a postretinitic atrophy of the optic nerve fibers. Even if the process was to be halted, early in its course, established damage would be so extensive, to both recipient and conductive visual elements, that an improvement in visual acuity could hardly be possible.

The rarest form of congenital lues is that of primary luetic retinal vascular disease. This form has some relationship to that type of disease just discussed, except that pigment changes are minimal and the obliterative arteritis with consequent postretinitic atrophy is quite marked. In addition to the retinal vascular pathology these cases are probably more often accompanied by other ocular signs of degeneration due to disturbed nutrition based upon this discriminative type of vessel disease. It is a very fine example of the various vascular diseases so characteristic of syphilis. Luetic aortitis, meningovascular lues, and this last mentioned form of vascular pathology, are all closely related members of the same clan.

The retinal vascular pathology of acquired lues involves both arterioles as well as the venules, perhaps pathology in the arterial system being somewhat more frequent. The condition is an inflammatory form of obliterative arteritis or of phlebitis, involving both the intima and the adventitia, with round cell infiltration, destruction of the muscularis, and with perivasculitis which at times is most severe. In a case studied microscopically by Von Appel the extensive circulation of the choroid remained normal. The postretinitic atrophy which develops in these cases seems to suggest that the disease, while vascular in character is largely retinal in anatomic detail.

Syphilitic retinitis, or choroidoretinitis or retinochoroiditis, is a diffuse disease of the fundus, and is characteristically a disease of secondary lues, at least appearing rather soon after the primary infection. Roenne's analysis of fourteen of these cases, following Leber's classical recapitulation of our knowledge of this disease, remains as our vade mecum.

The disease, as a recent acute condition, is now relatively uncommon but the later stages of the untreated cases are more frequently seen. The later stages of the condition have an appearance not un-

like that described under congenital lues as to secondary pigmentary degeneration. A microscopic study of this disease by Rochon-Duvigneaud has been made and the pathology is largely vascular and retinal. The outstanding characteristics are those subjective signs of visual disturbances classical for any acute choroidoretinitis, with the tragic postretinitic optic nerve atrophy which follows an unsuccessfully acute eye condition. Even though these conditions when first seen (at the primary examination) may seem hopeless for any ocular improvement, they must be vigorously treated nevertheless, because clinical experience seems to suggest that a disproportionate number of these are neuroluetics and terminate with meningovascular syphilis.

Cases of intraorbital and epibulbar gummata are still not too uncommon. While the reason is not clear, intraocular gummata are now most uncommon. The vital point is this: as every case of unilateral exophthalmos from an intraorbital space-taking lesion must have a Wassermann examination before orbitotomy—so also must every case of solid retinal detachment have serological studies before disposition is made of that case. A patient with a certain intraorbital gumma will have other general luetic complications, more important to that patient's life than the orbital condition. This is also present in the consideration of a case of intraocular gumma.

Syphilitic optic neuritis, not considering for the moment the primary luetic atrophy of taboparesis, is an acute, intensely severe luetic condition, a manifestation of tertiary syphilis, with a sudden, abrupt onset, and rather prone to recurrence when inadequately treated. The condition, when properly treated, has the best prognosis of any of the luetic intraocular conditions, excepting that of gumma.

Primary luetic optic nerve atrophy is a sign of cerebro-spinal lues, in fact is almost diagnostic of that condition, and, when untreated or if treated unsuccessfully, has a tragic termination in profound visual impairment. There is no other luetic condition in which the demands for treatment are greater. Vigorous, intensive treatment, based upon proven and accepted physiopathological principles is absolutely necessary. It is common knowledge, however, that tryparsamide should not be used in ocular conditions in which optic nerve fiber damage is already present at the time the antiluetic treatment is started. A sharp increase in the progress of this atrophy will frequently occur.

The treatment of lues by the new antibiotics is quite significant when considering neurolues. One must remember, however, that the necessity for arsenicals still exists.

*Cardiovascular-renal Diseases:*

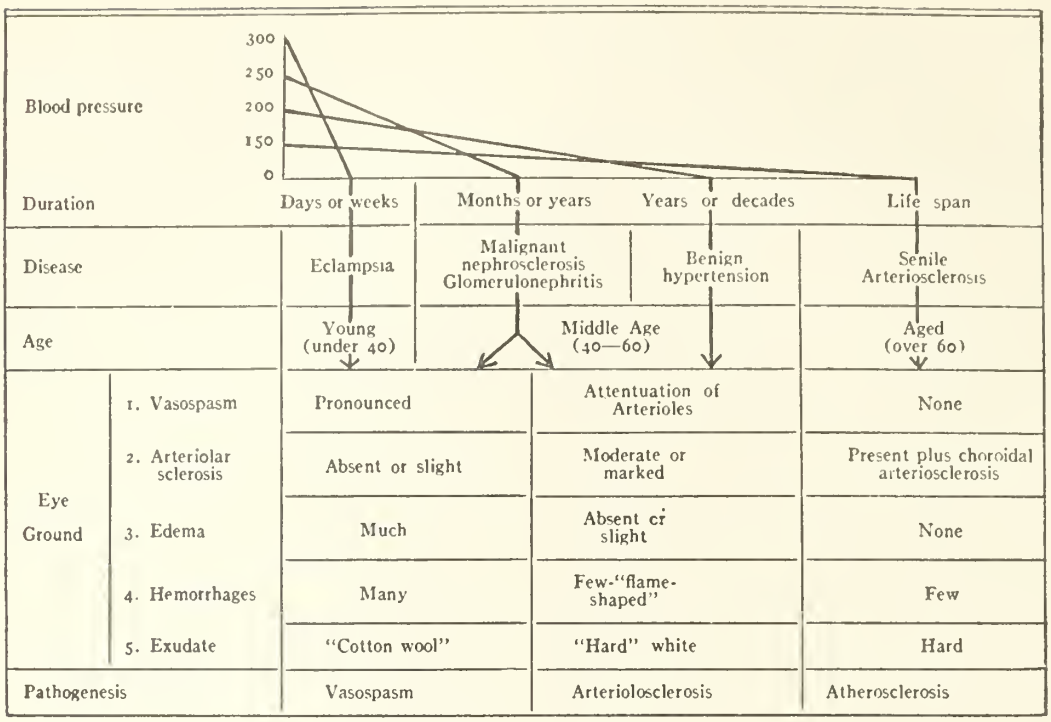
In considering these conditions there are three important processes to be considered. First, the changes in the retinal and choroidal vessels and the period at which these changes have become irreversible; second, the presence of retinal exudates and of retinal hemorrhages and their significance; and, third, the effect of these upon the retina, the choroid, and the optic nerve and their continued integrity.

There are several different classifications which classify these retinopathies into various subdivisions, as Grade 1, 2, 3, 4, etc. Such classifications have some advantages in that they are approximately descriptive. They also have disadvantages in that the classifications fail to consider the microscopic pathology which is present, and the prognosis of the case under consideration when correlated with etiology.

A nephritic toxemia of pregnancy can cause a fundus picture as grave in appearance as a similar type from a high degree of nephropathy from arteriolar sclerosis. These two would be graded ophthalmoscopically similarly. The etiology, the treatment, the underlying pathological changes, and the prognosis are wholly different. This single instance is sufficient to call attention to some dissatisfaction with this rather arbitrary system of grading. Retinal vascular pathology, when discussed, must consider etiology with the pathological changes.

One of the most satisfactory charts ever presented in correlating retinal lesions with hypertensive vascular and kidney diseases is presented herewith. It appears in Cardiovascular-Renal Disease by Smith, Weiss, Lilli, Konzelmann and Gault (Publishers, D. Appleton-Century Company). In the chart, systolic blood pressure alone is indicated though it is recognized that diastolic levels are often more significant from a prognostic standpoint. In general, when viewing this chart, as these authors said "the more marked degrees of hypertension are seen to have the shorter duration, tend to occur in the younger age group, and have vasospastic features which predominate in the eyeground findings. In benign hypertension, the height of the blood pressure is likely to be lower, but the duration longer. Hyperplastic sclerotic changes predominate rather than the angiospastic type of lesion. In atherosclerosis, the lesion is slow in development, occurring usually late in life, is accompanied by only relatively slight elevation in blood pressure and shows but few retinal changes."

No attempt is intended here to differentiate cardiovascular-renal disease into its various subdivisions, types and conditions. One can see, however, from the chart just presented that ophthalmoscopically this is roughly possible. The causes of death from cardiovascular-renal disease break down as follows: heart failure (coronary artery sclerosis and thrombosis), fifty per cent, cerebral vascular accident (hemorrhage or thrombosis), twenty-five to thirty-five per cent, and renal failure (nephrosclerosis, etc.), ten to fifteen per cent. A differential diagnosis is desirable,




Legend for Chart No. 1

Correlation of Retinal Lesions with Hypertensive-vascular Disease and Kidney Diseases. From Cardiovascular-Renal Disease. Smith, Weiss, Lillie, Konzelmann, Gault. Appleton-Century Co., New York and London, 1940.

Condensed chart illustrating the correlation of the ophthalmological findings in respect to the various cardiovascular-renal states. Systolic blood pressure only is indicated, although it must be recognized that diastolic blood pressure is often of more diagnostic significance. The more marked degrees of hypertension are seen to have the shorter duration, tend to occur in the younger age group, have vasospastic features which predominate in the eyeground findings. In benign hypertension, the height of the blood pressure is likely to be lower, but the duration longer. Hyperplastic sclerotic changes predominate rather than the angiospastic type of lesion. In atherosclerosis, the lesion is slow in development, occurring late in life, is accompanied by only relatively slight elevation in blood pressure and shows but few retinal changes.

and if the ophthalmologist can assist in making that or perhaps, even better, in confirming a tentative diagnosis, then he has contributed much.

Cardiovascular-renal disease can be roughly subdivided into: one, hypertensive-vascular disease; two, atherosclerosis, a senile, degenerative process affecting the larger blood vessels; three, glomerulonephritis; and four, combinations of these first three. In this subdivision so-called benign hypertension more likely nephrosclerosis, falls within the first subdivision above.

The three important processes mentioned earlier under this subdivision will now be considered as follows. The prognostic value of irreversible processes as they are seen in the retinal vessels is perhaps outstanding. Such changes result from scar fibrous tissue deposition in the walls of the vessels. These changes are to be classed with arteriosclerosis, and they are to be distinguished from vessel spasm. Etiologically, one is as important as the other in differentiation. The conclusions arrived at are different for each of these two processes. Prognosis can be based upon this accurate differentiation.

Edema, exudation, and hemorrhages, have a somewhat similar significance in prognosis. Vessel sclerosis, especially senile arteriosclerosis, has relatively few such pathological changes as compared with the retinopathy from hypertension and from glomerulonephritis. It is rather important to be able to differentiate such changes one from the other so that one may evaluate a case, as for instance, one of essential hypertension with a possible good prognosis from sympathectomy, or another similar case in which sympathectomy could hardly offer improvement. In evaluating any case under consideration, from a fundus standpoint, it is necessary to correlate the eye findings from the other clinical findings present; otherwise faulty conclusions might easily occur.

This is outstanding in considering the degenerative changes which one sees in the optic nerve. These may be hypertensive alone. They may be the result of an acute toxemia from acute kidney disease. They also may be a peripheral manifestation of grave intracranial vascular disease. The picture for each is not similar. The differences, however, do not lie in gross distinctions one from the other, but only in degrees

of exudates and of hemorrhages as they can appear in combination.

The third of these subdivisions, that is the effect of these processes upon the integrity of the structures of the fundus, and hence, upon vision primarily and prognosis secondarily, has especially to do with diabetes. This disease is still one of the principle causes of blindness. The vascular system in the eye breaks down much earlier than, for instance, in the kidney and in the cerebral blood vessels. This is seen not only with poorly controlled diabetics, but also in diabetics who apparently are fairly well standardized. The answer for this does not lie in the statement too frequently made that "diabetics are living longer and, hence, vessel pathology develops." The old textbooks of ophthalmology, written before the days of insulin therapy, showed the same retinopathy as that now seen and in degree no greater in amount than that which develops in so-called well standardized diabetic patients. There is a rough approximation between the degree of maintained standardization and the retinal vessel changes. A far more important aspect of this, to the ophthalmologist, is earlier diagnosis of diabetes before changes have occurred in the vessel walls. Repeatedly, cases report to the ophthalmologist for the diagnosis of a visual impairment and he suspects the possibility of a diabetes before the medical man has made the diagnosis. This applies especially in diabetic patients after the fourth decade of life.

In general, the appearance of the retinal vessels in their ratio and course, and the presence or absence of other pathological findings in the fundi are one of the most important and conclusive means for determining prognosis available in medicine. The treatment of cardiovascular-renal diseases at the present time is quite different from those considerations shown to these when Bright's disease and albuminuric retinitis were a symptom complex in the textbooks of the last generation; and when the control of a diabetic depended upon the patient's own examination of his urine sugar. The ophthalmologist has a most decided interest in these medical problems without invading the field of the internist or the neurologist, and he can be of assistance in treating these diseases.

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*Intra-Abdominal Hemorrhage—**Continued from page 33*

*Preoperative Care:* Patient was given 1000 cc.'s of 5% glucose, placed in Trendelenburg position and treated for shock. About four hours after admission, she had aroused from shock so that she was taken to the operating room.

*Detailed Description of Operative Technique:* Under a general anesthesia, the abdomen was prepared with merthiolate and was opened through a lower midline incision. The abdomen was found to be full of free blood. The blood was removed and the uterus delivered. There was a ruptured cyst in the right ovary and a bleeding artery appeared right in the center of the cyst, pumping blood at a rapid rate into the abdomen. Bleeding was controlled by placing a mattress suture around the artery. The abdomen was closed in layers using No. 00 chromic catgut on the peritoneum, No. 0 chromic catgut interrupted on the fascia and stainless steel wire, interrupted, on the skin.

*Anesthetic:* Ether. Patient stood the operation well.

*Postoperative Care:* Patient was given 500 cc.'s citrated blood and one unit of blood plasma and placed in Trendelenburg position.

*Final Diagnosis:* Excessive hemorrhage into a follicular retention cyst.

*Progress Notes:*

First day postoperative. Temperature 99.8, pulse 70 and respirations 20. No complaints. Patient appeared to be very drowsy at this time.

Third postoperative day. Feeling much better. No complaints. Temperature and pulse normal.

Sixth day postoperative. Dressing was done. Sutures removed. Wound well healed. No infection.

Patient made an uneventful recovery and was discharged from the hospital the tenth day after admission.

*Condition on Discharge:* Improved.

*Follow-up Notes Since Leaving Hospital:*

Patient returned every month for checkup of her pregnancy and was delivered of her full-term pregnancy the first part of May, 1949.

## Summary

1. In treatment of intra-abdominal hemorrhage, operation should be undertaken at the first possible moment that the patient offers a reasonable hope of standing the operation.

2. Speed is seldom of prime importance, but when dealing with cases such as have been presented here, where massive hemorrhage is present, it may be so important as to spell the difference between life and death.

3. The extent of the operative procedure must be limited by the good judgment of the surgeon and is dependent upon the condition of the patient.

# DUODENAL ULCERS OCCURRING IN TWINS

JOHN P. GOODRICH, M. D., and PHILIP O. GREGORY, M. D., St. Andrews Hospital

CASE I—W. C., white male, laborer, age 21, married, referred for X-ray of stomach November 22, 1949, giving a history of stomach ulcers of five years standing.



X-ray of stomach of W. C. showing dilatation and hyperperistalsis, also the bulbar deformity.

*Family History:* Unimportant except that a twin brother suffers from similar stomach trouble.

*Past History:* Usual children's diseases, appendectomy five years ago, otherwise negative.

*Chief Complaint:* Inability to eat.

*Present Illness:* Patient has suffered periodic attacks of nausea and epigastric distress for the past five years. During this time treatment by diet and medication has given no lasting relief.

*Physical Examination:* Patient underweight. Skin, mucous membranes and conjunctivae pale. Localized tenderness in right upper quadrant, scar of appendectomy, otherwise negative. Temperature, pulse and respirations normal, blood pressure 120/70. Blood count — hemoglobin 76%, red blood count 3,870,000, white blood count 9,250, differential normal. Urine normal. Gastric analysis shows fasting free HC1 28°, no free HC1 after administration of test meal.

X-ray: Stomach large and low without deformity. Peristaltic waves frequent and deep. Pylorus normal.

Duodenum—bulbar deformity with niche about 1 cm. in diameter on posterior wall near lesser curvature. Obstruction not sufficient to cause retention.

Patient was admitted to the hospital November 25, 1949, and after the usual preparation underwent a partial gastrectomy (Polya), November 28, 1949. A dilated stomach and an ulcer in the duodenal bulb admitting the tip of the examining finger were found. Usual postoperative treatment was carried out and patient was discharged from the hospital on the seventh postoperative day improved.

Pathological report on resected portion of stomach by Dr. Goodof.

Chronic hypertrophic gastritis.

CASE II—M. C., white male, laborer, age 21, single, referred for X-ray of stomach December 1, 1949, stating that he had suffered from stomach trouble for about two years.



X-ray of stomach of M. C. showing hypertonicity and hyperperistalsis, also the bulbar deformity.

*Family History:* Twin brother had similar stomach ailment, otherwise not important.

*Past History:* No bearing on present illness.

*Chief Complaint:* Pain in stomach.

*Continued on page 45*

# HYDRONEPHROSIS WITHOUT URINARY TRACT MANIFESTATION

JOHN P. GOODRICH, M. D., St. Andrews Hospital

*Unilateral hydronephrosis accompanied by elevated blood pressure in which the chief and only subjective complaint was frequent, intermittent headache of a severity to cause temporary total disability. Condition relieved by nephrectomy.*

D. B., male, white, age 40, admitted to hospital 1-29-1949, for diagnosis.

*Family History:* Father, mother and one sister living and well. No history of familial or hereditary disease.

*Personal History:* Usual children's diseases without complications, appendectomy when a lad, suppurating right cervical adenitis during his teens, otherwise irrelevant.

*Chief Complaint:* Intermittent severe fronto-occipital headaches.

*Present Illness:* In 1943, while in the U. S. Navy and stationed in the tropics, onset with headache of a severity to require hospitalization. In 1944, hospitalized in a U. S. Naval hospital where a diagnosis of migraine was made. Condition has remained unchanged and during the past year has twice been admitted to hospitals for diagnosis. At one of these was told he had a non-functioning right kidney and was advised to have same removed. Previous to admission to hospital, patient still complaining of severe headache, consulted Dr. Gregory at his office, was found to have a blood pressure of 210/115 and was referred to the X-ray department for intravenous urography. Procedure showed a normal functioning left kidney without gross anatomic change in the pelvis, ureter or bladder. There was never sufficient concentration of the contrast medium in the right kidney pelvis or ureter to render them demonstrable in films. It was advised that patient be admitted to hospital for complete examination including retrograde pyelography. Note: Patient stated that on numerous occasions his blood pressure has been found to be elevated 200 or over, but high pressure has not been constant.

*Physical Examination:* Aside from scars on right side of neck from cervical gland drainage and on abdomen of appendectomy, physical examination not remarkable. Temperature and pulse rate within normal limits. Blood pressure 130/100. Blood count: Hemoglobin 90%, red blood cells 4,610,000, white blood cells 5,800, differential normal. Gross urine, negative. N. P. N. 36. Hinton negative.



Intravenous urogram
Time after injection 15 minutes



Retrograde pyelograms

*Local Examination:* Cystoscopy: Bladder normal, ureteral orifices normal, stream from left clear, no urine seen coming from right. Left ureteral catheter passed to kidney pelvis, right obstructed at about 10 cm., or the level of second sacral segment. Urine specimen obtained from left kidney negative except for few blood cells, phthalin intravenously appeared in urine from left kidney in four minutes. No specimen or phthalin obtained from right kidney.

Retrograde pyelograms: 10 cc. contrast medium injected in left kidney pelvis before production of pain. Left kidney pelvis and ureter showed no gross abnormality. 15 cc. contrast medium injected in right ureter before pain was produced. Sharp angulation of ureter to right with definite kink at level of upper surface of third lumbar body. Ureter above this transverse and dilated forming a horizontal crescent shaped dilatation (convexity downward) about 7 x 1.5 cm. Kidney pelvis and calices not demonstrable. A large oval dense shadow was made out extending to the outer limit of the liver margin which was thought to represent an enlarged kidney displaced outward and upward by a rounded mass, the lower border of which fits into the concave upper surface of the crescent shaped dilatation of the ureter.

*Conclusions:* Normal functioning left kidney without abnormality of its pelvis or ureter. Anuric right kidney displaced outward and upward under the liver by a non-palpable benign tumor probably cystic in nature to the right of the first and second lumbar bodies.

Patient discharged from hospital on the afternoon of the day of examination with advice to return at a later date for further observation and probable surgical exploration.

Following discharge from hospital patient suffered an acute febrile attack and was admitted elsewhere. He developed a severe right pyelitis evidenced by pyuria and high temperature, was treated with penicillin and streptomycin and was discharged from the hospital afebrile at the end of 21 days.

Readmission to St. Andrews 3-13-49, for exploratory operation. Hemoglobin 70%, red blood cells 4,120,000, white blood cells 8,050, differential within normal limits. Gross urine showed trace of albumin and a few pus cells. N. P. N. 29.6. Examination otherwise essentially the same as on previous admission.

*Operation:* 3-16-49, Dr. Gregory. Usual incision exposing the right renal space where a large cystic mass incorporating the entire right kidney and its pelvis was found. About 800 cc. straw colored fluid was removed by trocar after which a right nephrectomy was performed. Surgical diagnosis of hydronephrosis. 1 unit plasma and 1000 cc. 5% glucose intravenously during and following surgery. Temperature of 102.4 on the first postoperative day, received 300,000 units hypercillin on each of the first and second postoperative days, on the third postoperative day temperature was normal. Thereafter, convalescence was uneventful. Discharged 3-25-49 improved.

*Pathological Report:* Dr. Goodof. Gross examination: Specimen consists of kidney and attached cystic structure. On opening the mass it is found that the cystic structure apparently represents the pelvis of the kidney with marked dilatation of the major and minor calyces and marked destruction, by compression, of renal parenchyma so that the cortex and medulla in some areas measure only 0.6 cm. in diameter. The appearance of the kidney surface is marked by numerous cross lobulations. The organ is grayish red in appearance.

Microscopic examination: No evidence of malignancy. Kidney shows marked dilatation of pelvis. Extreme fibrosis of stroma. Almost no recognizable glomeruli. The tubules show cystic dilatation. The stroma is intensely infiltrated with lymphocytes and plasma cells.

Kidney: Marked chronic pyelonephritis.
Hydronephrosis.

*Subsequent History:* Patient has been seen several times since discharge from hospital. He has not had any recurrence of headaches, his blood pressure on these visits has been about 130/85. There are no untoward complaints and recovery is apparently complete.

*Comment:* The danger of acute urinary tract infection following instrumentation in the presence of urinary stasis is well illustrated by this case. Whether the acute pyelitis was the result of latent infection or was produced by the introduction of infecting organisms from outside makes little difference. Instead of being discharged from the hospital on the same day retrograde pyelography was performed, he should have remained in the hospital under close observation until the danger of infection had passed. Only by such policy could treatment have been immediately instituted. Under such management the acute episode might have been less severe.

I fail to find any satisfactory explanation of the headache and elevated blood pressure as the normal functioning left kidney seemed entirely adequate. If he remains as he has to date it must be assumed that the right hydronephrosis was the sole cause of his illness.

# CLINICO-PATHOLOGICAL EXERCISE

## Held at St Andrews Hospital — April 26, 1949

A 62-year-old, white, married housewife was admitted to the hospital on March 18, 1949, and died April 8, 1949. She gave a history of having had the usual childhood diseases, including diphtheria and muscular rheumatism. Menstrual cycle began age 14; regular normal periods. Menopause completed at age 50. She had a uterine polyp removed in 1932, an appendectomy in 1936 and a hemorrhoidectomy in 1947. She was admitted to the hospital in April, 1948, because of a pulmonary hemorrhage due to undetermined cause and was discharged as improved June 2, 1948.

*Family History:*

Husband living but in poor health. Father died at 84 with heart disease. Mother died at 68 of carcinoma of the stomach. Two brothers and two sisters living and well.

*Present Illness:*

She was admitted to this hospital because of a sudden pain below the outer end of the right clavicle. This pain was worse on motion of the shoulder and on deep inspiration. No history of cough, chills, fever or sore throat preceding this complaint. The preliminary diagnosis of neuritis was made and right arm was placed in a sling. Patient was given some aspirin and told to come to the hospital the next day if the pain persisted. For the next two days the pain was relieved but on the third day patient came to the hospital because of recurrence of this pain. While in the hospital, an X-ray of the chest was taken and the radiologist reported the following:

"Coarse infiltrative process extending into right lung field nearly to the periphery from the right hylus; similar process but less marked in left lung. Apices and bases of both lungs clear. Right diaphragm slightly elevated, left diaphragm normal. Both costophrenic angles clear. Heart and great vessels not remarkable."

*Clinical Laboratory:*

Blood count was 4,150,000 red blood cells, 12,200 white blood cells, 78% hemoglobin, 80% polys and 20% lymphs. Urinalysis showed no albumin, sugar or other pathologic findings. Serology was negative. Sputum examination showed no acid fast bacilli.

*Physical Examination:*

Well developed, well nourished, white female. Hair is greying, abundant. Eyes blue; pupils react to light and accommodation, conjunctivae pale. Nose shows no obstruction, perforation or discharge. Ears: no wax. Mouth: upper dentures present. A few teeth present in lower jaw. Pharynx clear. Neck: traches is in the midline; thyroid small and smooth. Breasts are well developed. Lungs: Clear except hilar region on right and from the level of the 5th rib up to the clavicle. There are numerous rales; fine, crepitant and noisy at times, especially on deep respiration. Left side seems to be within normal limits at this time. Expansion is poor. Somewhat impaired percussion note over the upper right chest anteriorly. Cardio-vascular: Blood pressure 134/76, pulse 96; equal in rate, force and rhythm. No murmurs. No cardiac enlargement. Moderate amount of thickening of the arteries. Abdomen: flat. Liver, kidneys and spleen not made out. No abnormal masses, tenderness or rigidity. Vaginal: No evidence of cystocele or rectocele. No pelvic masses or tenderness. Rectal: No rectal bleeding, no hemorrhoids. Good sphincter tone. No rectal masses. Bones and joints: No swelling, deformity or limitation of motion. Neuro-muscular: Muscles well developed and of good tone. Skin clear throughout.

*Hospital Course:*

She was given absolute bed rest in the hospital at the time of admission and an attempt was made to get her to eat. She appeared worried and depressed at times and had very little appetite.

On April 3rd, she had a second severe pain in the chest, of a crushing nature, and her pulse was 115. Blood pressure 110/68. She was started on continuous oxygen and given some digitoxin, 0.2 mgs. every 8 hours. Color was poor. The next day, April 4th, she seemed somewhat improved although her appetite remained poor. On April 5th, oxygen was continued and she had an attack of left-sided chest pain with dyspnea and cyanosis and she was given morphine for relief. On April 6, 1949, she seemed somewhat improved and on April 7th, she had moderate dyspnea. Her color seemed better. On April 8th, she had a sudden pain in her chest and died at 8.28 A. M.

### Discussion

*Dr. Phillip Gregory:*

"I have followed this patient for a number of years outside the hospital and I remember that in April of 1948, she had a very persistent hacking cough which lasted for several weeks and finally an X-ray of her chest was taken. It is interesting that while she was in the X-ray room and just before her X-ray was taken she had a sudden coughing spell and started to spit up bright red blood. This is the first time to my

knowledge that she had hemoptysis. She was put to bed at that time and after three weeks of bed rest gradually got up and was discharged from the hospital in June, free from cough. Now she returns to the hospital because of a sudden pain in the upper part of her right chest and an X-ray shows some involvement of the right lung field; which suggests any number of things such as foreign body, lung abscess, localized pneumonitis, malignancy, etc. From the history and a review of the other symptoms, it appears that the primary site of the disease is in the lungs. Probably on admission she had a pleurisy. The cause of the original hemoptysis was undetermined at the time of her previous admission but an attempt was made at that time to make a diagnosis.

Since discharge from the hospital in June, 1948, until three or four days before her readmission here in March of 1949, she has been practically without symptoms. Could the original hemoptysis have been due to the presence of a foreign body? I do not believe so, because she went for nine months after leaving the hospital without further trouble and there is no history that sounds as though she might have gotten something in her respiratory tract. The blood dyscrasias may be ruled out, since there was no laboratory evidence. There is no evidence of aneurysm, cardiac decompensation or pulmonary infarction. She had a moderate amount of arteriosclerosis but her blood pressure was not high enough to cause a rupture of any of the smaller vessels, especially since she did not have cardiac decompensation. I thought that at the time this patient probably had an inflammatory process with hyperemia and an ulceration into one of the bronchioles. The bleeding which occurred on her admission in April of 1948, was not massive and the patient responded rapidly with bed rest. That is the type of hemoptysis that one sometimes sees with an inflammatory lesion.

I am unable to explain what happened to this patient during her admission here on March 18, 1949, and I cannot account for her death on April 8, 1949. An X-ray was taken which showed no appreciable change from that which was taken in 1948. Her appetite was poor all the time she was here. She had an attack on April 5th, three days before death, which looked like a coronary artery thrombosis. She rallied, however the next day but finally died three days following this final episode.

To summarize, it seems to me that the pulmonary hemorrhage which this patient had in April of 1948, was probably due to an inflammatory lesion from which she apparently recovered and was quite well for the next nine months. Then she was readmitted with what appeared to be a pleurisy of the right chest. There were no other symptoms except those referred to the pulmonary system. She appeared quite depressed and had little appetite all the time she was in the hospital. The only pathology uncovered was in her right lung. While in the hospital, she apparently had a coronary artery thrombosis and died as a result of this.

I would like to have Dr. Goodrich tell us more about the X-ray examination. I would especially like to have a comparison between the X-ray of April, 1948, and the one taken in March of 1949."

*Dr. Goodrich:*

"I saw this patient for the first time on December 28, 1948. The X-ray of that date showed only a high right diaphragm and little remaining evidence of the pathologic process extending outward from the right hylus found on examination in April of 1948. In checking the previous films and going over the history it seemed to me that the most likely diagnosis was lung abscess which had resolved. In March of 1949, when examination revealed a recurrence of the process in the right upper lobe which progressed and also appeared in the upper left lobe, non-opaque foreign body or malignancy seemed possible and I advised bronchoscopic examination."

*Dr. Gregory:*

"There isn't enough X-ray evidence to suspect that this patient died from a pulmonary disease, as I see it. The fact that she had a poor appetite all the time she was in the hospital should have led us to investigate the stomach. This might have been a metastatic disease of the lung. I think that she died from: (1) Coronary artery disease, (2) pneumonitis of the right lung, (3) arteriosclerosis, (4) possible malignancy of the lung."

*Dr. Thomas O'Connor:*

"When I admitted this patient to the hospital, I thought she had a possible neuritis because the pain in her right chest was aggravated on motion of the right arm. However, as things turned out, I feel that this patient might have had pleurisy, although I could hear no friction rub at the time of admission. I believe she died as a result of myocardial insufficiency."

### Pathologic Discussion

*Dr. Irving Goodof:*

"The lesion of primary importance in this patient is an area of ulceration on the greater curvature of the stomach at about its mid-portion, measuring 3 cm. in diameter, with elevated firm edges. Radiating from this area of ulceration is a mass of firm gray-white homogenous neoplastic tissue which infiltrates the surrounding mucosa and wall, covering an area roughly 12 to 15 cm. in diameter and sharply defined. This portion of the stomach measures 1 to 1.5 cm. in thickness. The peri-gastric and peri-pancreatic lymph nodes are enlarged and grossly re-

placed by tumor tissue identical with that seen in the stomach. The liver presents nodules of tumor measuring up to 5 cm. in diameter; umbilicated and fairly sharply defined. These nodules occupy approximately 30% of the volume.

The left pleura shows diffuse infiltration by neoplastic tissue. The upper lobe of the right lung presents several firm nodules of tumor, averaging 5 mm. in diameter. The lower lobe of the right lung is almost completely involved in a hemorrhagic process of consolidation. The left lung is edematous.

Microscopically the tumor shows a characteristic small cell type of growth with infiltration of these tumor cells between muscle bundles and distinct invasion of lymphatics. There is a moderate desmoplastic tendency in all areas involved by tumor.

The autopsy findings do not provide an adequate explanation for the hemoptysis noted a year ago. There is very little question but that the gastric lesion was present at that time. The pulmonary metastases, however, were small and undoubtedly of relatively recent occurrence.

The immediate cause of death is probably the hemorrhagic bronchopneumonia of the lower lobe of the right lung. It is possible that the final episodes, producing a picture of collapse, may have been due to intracranial metastases. The brain, however, was not examined. The heart itself showed only minimal sclerotic changes and cannot be incriminated for the acute terminal episodes."

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*Duodenal Ulcers Occurring in Twins—Continued from page 40*

*Present Illness:* For the past two years patient has suffered epigastric pain for which he has obtained no relief by diet or medication.

*Physical Examination:* Patient of normal weight. Skin, mucous membranes and conjunctivae of normal color. Slight epigastric tenderness, otherwise negative. Temperature, pulse and respirations normal. Blood pressure 130/76. Blood count — hemoglobin 90%, red blood count 4,470,000, white blood count 5,750, differential normal. Urine normal. Gastric analysis shows fasting free HC1 25°, after test meal free HC1 increased to 70°.

X-ray: Stomach hypertonic, no deformities, peristaltic waves frequent and deep. Pylorus normal.

Duodenum — bulbar deformity with niche about 1 cm. in diameter on posterior wall near lesser curvature side. No obstruction.

Patient was admitted to the hospital December 2, 1949, and after the usual preparation underwent a partial gastrectomy (Polya), December 5, 1949. A normal size stomach and an ulcer in the duodenal bulb admitting the tip of the examining finger were found. Usual postoperative treatment was carried out and patient was discharged from the hospital on the seventh postoperative day improved.

Pathological report on resected portion of stomach by Dr. Goodof.

Chronic hypertrophic gastritis.

We do not know the results of the surgical treatment of these cases as they are too recent for such evaluation. They are reported at this time because of the occurrence of similar peptic ulcers in identical twins with almost identical symptoms and identical medical treatment without response. The first, with symptoms of five years duration had a moderately dilated stomach indicating slight obstruction, also a moderate degree of anemia. The second, with symptoms of two years duration, had no stomach dilatation and no anemia. The location and size of the duodenal ulcers were the same as determined by X-ray examination and surgery.

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Of the deaths from respiratory tuberculosis in 1947, 32.1 percent occurred outside of institutions, and 67.9 percent occurred in institutions. Of the total respiratory tuberculosis deaths, 25.8 percent occurred in general hospitals, 30.9 percent in tuberculosis hospitals and sanatoria, and 9.0 percent in mental hospitals. — Sara A. Lewis (biostatistician), *Pub. Health Rep.,* April 1, 1949.

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Carefully documented studies on the use of streptomycin in clinical tuberculosis have established the fact that this new anti-bacterial agent exerts a beneficial therapeutic effect on several forms of tuberculosis. At its best, however, it is only an auxiliary part of the general treatment in most forms of the disease, and is partially dependent, for its full effect, upon other more common therapeutic measures, such as bed rest, pneumothorax, and chest surgery. (Recommendations of the Subcommittee on Streptomycin of the Expert Committee on Tuberculosis of the World Health Organization, January, 1949.)

# EDITORIAL

## Annual Dues — American Medical Association

Because of the many inquiries received relative to the 1950 American Medical Association dues, I am going to devote the Editorial Page in this issue of the JOURNAL to the following information which has been received from George F. Lull, M. D., Secretary and General Manager of A. M. A.

"The House of Delegates of the American Medical Association at its meeting in Washington, D. C., December 6 to 8, 1949, adopted amendments to the By-Laws of the American Medical Association whereby Division One, Chapter II, Tenure of Membership, has been changed to read as follows:

TENURE AND OBLIGATIONS OF MEMBERSHIP; DUES

Section 1.—When the Secretary is officially informed that a member is not in good standing in his component society, he shall remove the name of said member from the membership roll. A member shall hold his membership through the constituent association in the jurisdiction of which he practices. Should he remove his practice to another jurisdiction, he shall apply for membership through the constituent association in the jurisdiction to which he has moved his practice. Unless he has transferred his membership within six months after such change of practice, the Secretary shall remove his name from the roster of members.

Sec. 2.—Annual dues, not to exceed $25.00, may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Each active member shall pay said annual dues to his constituent association for transmittal to the Secretary of the American Medical Association.

An active member who is delinquent in the payment of such dues for one year shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address.

Any former member who has forfeited his membership because of being delinquent in payment of dues may be re-instated on payment of his indebtedness.

You will note that the following important changes have been made:

(A) The word "Dues" has been added to the title of Chapter II.

(B) Chapter II has been divided into two sections.

(C) The first sentence of Chapter II, which read, "Membership in this Association shall continue as long as a physician is a member of a component society of the constituent association through which he holds membership," has been deleted.

(D) The words "of the American Medical Association" have been added after the word "Secretary" where clarification is necessary.

(E) The sentence, "An active member shall pay dues or assessments as may be prescribed by the Constitution or By-Laws," has been deleted.

(F) The words "in the American Medical Association" have been added after the words "shall forfeit his active membership" in the second paragraph of Section 2.

(G) The sentence forming the third paragraph of Section 2, with regard to reinstatement, is a new addition to Chapter II.

(H) A new paragraph, forming the first paragraph of Section 2, providing for annual dues not to exceed $25.00 has been added to Chapter II.

THE HOUSE OF DELEGATES, ON RECOMMENDATION OF THE BOARD OF TRUSTEES, SET THE MEMBERSHIP DUES FOR THE YEAR 1950 AT $25.00.

The full effect of the new provisions will have to be studied and developed during the next year. However, the following interpretations of the amended By-Laws are offered for your guidance at this time:

(a) Active membership in the American Medical Association will continue to be limited to those members of constituent associations who (1) hold the degree of Doctor of Medicine or Bachelor of Medicine, and (2) are entitled to exercise the rights of active membership in their constituent associations as provided in Article 5 of the Constitution of the American Medical Association.

(b) A member of the American Medical Association shall lose his membership in the Association when the Secretary of the American Medical Association is officially informed that a member is not in good standing in his component society *or is delinquent in the payment of the American Medical Association dues established by the above change in the By-Laws.*

(c) Forfeiture of membership in the American Medical Association due to failure to pay dues will have no effect on membership in the component or constituent medical societies unless the component or constituent societies amend their respective constitutions and by-laws. It is, therefore, possible that a physician may be a member of his component and constituent societies and at the same time not be a member of the American Medical Association.

(d) The amended By-Laws provide for the collection of the American Medical Association membership dues by the constituent associations for transmittal to the Secretary of the American Medical Association. The detailed method to be adopted by each constituent association will vary in each state. In general, the method utilized by each state for the collection of its own component and constituent association dues should be followed.

It is planned to provide each member of the American Medical Association a membership card and certificate of membership when his dues are paid.

It will be necessary for the Secretary of the American Medical Association to notify those members who are delinquent in the payment of their dues, and this office will, therefore, require a complete list of all active dues paying members.

No changes have been made in the Constitution and By-Laws of the American Medical Association with respect to Fellowship. Eligibility for Fellowship and annual Fellowship dues of $12.00 remain the same. Under the present By-Laws a Fellow will pay for the year 1950 total membership and Fellowship dues of $37.00.

The following members may be exempted from the payment of the $25.00 American Medical Association membership dues: retired members; members who are physically disabled; interns, and those members for whom the payment of such dues would constitute a financial hardship.

No member should be exempted from the payment of his American Medical Association dues who is not exempted from his component and constituent society dues."

## COUNTY SOCIETIES

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President, LeRoy C. Gross, M. D., Auburn
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Joseph A. Donovan, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Charles H. Gordon, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Frederick C. Dennison. M. D., Thomaston
Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Philip H. Sylvester, M. D., Damariscotta
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
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Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, Henry C. Knowlton, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Albert J. Bernard, M. D., Skowhegan
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, J. Robert Downing, M. D., Kennebunk
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Cumberland

The annual meeting of the Cumberland County Medical Society was held at the Maine General Hospital, December 15, 1949. The meeting was preceded by a Clinic conducted by the Attending and Resident Staff.

After the dinner, a business meeting was held, at which time Dr. Henry Hudson was accepted for membership in the Society by transfer. Dr. William MacVane and Dr. Francis Fox were voted to membership. The secretary and treasurer's reports for 1949 were read and accepted. The report of the nominating committee was as follows:

President, Dr. Frank A. Smith, Westbrook.

Vice President, Dr. Harold V. Bickmore, Portland.

Councilor, Dr. Charles H. Gordon, Portland.

Public Relations Committee: Dr. George I. Geer, Dr. Philip P. Thompson, Jr., Dr. Philip H. McCrum.

Auxiliary Committee of Legislation, Dr. Roderick Huntress.

Delegates to the Maine Medical Association (for two years): Dr. Eugene E. O'Donnell, Dr. Richard S. Hawkes, Dr. Joseph E. Porter. Alternates for two years: Dr. G. E. C. Logan, Dr. Frances W. Hanlon.

It was moved and seconded that the Secretary cast one vote for the candidates as recommended.

The speakers of the evening were Dr. Charles M. Barbour, Associate in the Department of Anesthesia, Hartford, and Dr. Robert Tennant, Associate Pathologist, also of Hartford Hospital. They gave a combined symposium on Blood Volume Determination by the Evans Blue Method, and discussed at some length its practical application, particularly in regard to Replacement Therapy.

RALF MARTIN, M. D.,
*Secretary.*

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The 208th meeting of the Cumberland County Medical Society was held in the Mercy Hospital on January 26, 1950. The meeting was preceded by an interesting Clinic, conducted by the Staff Members of the Mercy Hospital.

Following the dinner, a business meeting was held, at which Dr. Nicholas Fish and Dr. Walter Russell were admitted to membership. It was then voted to admit the following physicians to Senior Membership in the Society: Dr. Nathaniel B. T. Barker, Dr. S. Judd Beach, Dr. Luther A. Brown, Dr. Frank E. Carmichael, Dr. Charles L. Cragin, Dr. Franklin A. Ferguson, Dr. Alfred W. Haskell, Dr. Harris B. Haskell, Dr. Louis L. Hills, Dr. James G. S. Jamieson, Dr. Samuel G. Sawyer, Dr. Harold R. Webb, Dr. Fred P. Webster, Dr. Francis J. Welch, Dr. Clement P. Wescott.

The Society unanimously directed the President and Secretary to prepare a letter stating the Society's opposition to the proposed Compulsory Health Insurance Plan now before the Congress and send this letter to the President of the United States and the Congressmen and Senators from Maine.

The President introduced the speaker of the evening, Dr. Ralph A. Goodwin of Auburn, President of the Maine Medical Association, whose subject was, "Socialized Medicine as Published in the Ewing Report." Dr. Goodwin discussed Compulsory Health Insurance in general and the Ewing report in particular with particular reference to its inaccuracies and inconsistencies in relation to the level of the Medical Practice in the United States today and the state of the Nation's health. He spoke briefly on the tendency in this country towards socialization in general.

This paper was discussed principally by Dr. Eugene H. Drake who emphasized the need for physicians in general to support the present Voluntary Health Insurance Plan, and stressed that fact that only approximately 60% of the physicians in the state had signified their support of the plan as recommended by the Maine Medical Association, as well as the Cumberland County Medical Society by signing the neces-

sary statement. He mentioned that the physicians of some of the County Societies were coöperating to the extent of 85 to 100%.

RALF MARTIN, M. D.,
*Secretary.*

## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, on January 11. Twelve members were present. The meeting was opened by Dr. Lyman C. Burgess who briefly outlined his plans as president of the Society for the coming year. Minutes of the last meeting were read and approved. Discussion was held on the $25.00 A. M. A. dues. A letter was read from Governor Payne relative to the Civilian Defense Bill.

Dr. Wilbur Manter of Bangor presented a paper on "Water Balance and Electrolytes," which was followed by discussion.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## Washington

A regular meeting of the Washington County Medical Society was held on Friday, January 20th, 1950, at the Dover Hill Inn, St. Stephens, New Brunswick, with twenty members and eight guests present. After a luncheon at 12.30 P. M., Dr. Samuel R. Webber of Calais, President of the Washington County Medical Society, introduced Dr. Ralph A. Goodwin of Auburn, President of the Maine Medical Association. Dr. Goodwin spoke on Socialized Medicine. He explained what is meant by Socialized Medicine and then went over the Ewing report which is supposed to explain the government's basis for Compulsory Health Insurance. He pointed out several fallacies in the report. He pointed out that Compulsory Health Insurance will cover only those gainfully employed and that the poor and unemployed and those chronically ill with mental disease or tuberculosis will have to be looked after as before by charity. Those who you would think would be best benefited by a plan of Compulsory Health Insurance will not be protected. Those gainfully employed are enrolling in ever increasing numbers in voluntary health insurance plans which is our answer to the compulsory plan. His talk was well received and gave the members a clear idea of the meaning of Socialized Medicine.

Dr. Webber then introduced Dr. Howard Cone, a Neurosurgeon at the Neurological Institute of Montreal, Quebec. Dr. Cone's subject was The Diagnosis and Treatment of Rupture of Intervertebral Discs. He said that the 23 intervertebral discs in the body act as shock absorbers and that once they are injured or diseased they cannot be healed. Nature's way is to fuse one vertebral body to another, but this is a long, painful process. Modern surgery aids nature by removing the diseased cartilage and fusing two vertebral bodies together. He illustrated his talk with lantern slides to show various types of cases and the method of treatment. He believes in early ambulation and usually tries to get the patient up by the first day after operation. He demonstrated one case, a man from St. Stephens, N. B., who was incapacitated but two weeks after operation was free of pain and has been since. Dr. Cone's talk was well received and was followed by an active discussion.

An excellent dinner was served at 6.00 P. M. and was followed by a business meeting. Dr. Harold Gordon Sears of Woodland was elected to membership. The $25.00 A. M. A. dues was explained.

It was voted to hold the next meeting in Dennysville, April 20th, with Drs. Norman Cobb, Hazen Mitchell, and James Bates, all of Calais, on the program committee.

KARL V. LARSON, M. D.,
*Secretary.*

## York

The annual meeting of the York County Medical Society was held at Kennebunk on Wednesday, January 11, 1950.

There were 22 members and 4 guests present. The report of the last meeting was read and accepted. The annual report and the treasurer's report were read and accepted.

Dr. Willard H. Bunker of York Harbor, was elected to membership by transfer from the Washington County Medical Society.

The following officers were elected for 1950:

President, William F. Mahaney, M. D.

Vice President, Joseph R. LaRochelle, M. D.

Secretary-Treasurer, Charles W. Kinghorn, M. D.

Board of Censors: Owen B. Head, M. D. (1952), John J. Murphy, M. D. (1951), W. T. Roussin, M. D. (1950).

Delegates to the Maine Medical Association: Paul S. Hill, Jr., M. D., Charles W. Kinghorn, M. D., Kenneth J. Cuneo, M. D. Alternates: Walter D. Mazzacane, M. D., Stephen A. Cobb, M. D., Marion A. K. Moulton, M. D.

Committee on Resolutions: Alexander W. Magocsi, M. D., H. Danforth Ross, M. D., William B. O'Sullivan, M. D.

Publicity Representative, Carl E. Richards, M. D.

W. Mayo Payson, Executive Secretary of the Maine Medical Association, talked on National Bills, and explained the Grievance Committee.

Dr. Eugene H. Drake, Councilor, spoke. President Ralph A. Goodwin talked on Socialized Medicine.

C. W. KINGHORN, M. D.,
*Secretary.*

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# NEWS AND NOTES

## TENTATIVE PROGRAM
## THE AMERICAN GOITER ASSOCIATION
### Houston, Texas
### March 9, 10, 11, 1950
### The Shamrock Hotel

Thursday—March 9th
8.00 A. M.—Registration
9.00 A. M.—General Session

*Diagnostic Methods in the Study of Human Thyroid Disease:*

Dr. Elmer C. Bartels—Basal Metabolic Rate and Blood Cholesterol.

Dr. A. Querido—TSH in Differential Diagnosis of Hypometabolic State.

Dr. S. B. Barker—Blood Iodine.

Dr. Paul Starr—Blood Iodine.

Dr. Sidney Werner—I-131 Tracer.

Dr. F. Raymond Keating, Jr.—I-131 Tracer.

Discussion.

Guest Lecture.

Van Meter Award Paper.

2.00 P. M.—General Session

*Exophthalmos:*

Dr. Brown M. Dobyns—Pathologic Physiology and Etiology.

Dr. A. D. Ruedemann—Natural Life History of Exophthalmos.

Dr. E. Perry McCullagh—Medical Management of Exophthalmos.

Dr. James L. Poppen—Surgical Treatment of Exophthalmos.

Discussion.

*Symposium on the Role of the Adrenal in Thyroid Disease:*

Dr. W. L. Money or Dr. Reis.

Drs. Statland and J. Lerman.

Dr. George W. Thorn.

Friday—March 10th
8.00 A. M.—Registration
9.00 A. M.—General Session

*Symposium on the Treatment of Graves' Disease with I-131:*

Drs. Clark, Gordon, Richards, Chapman and Blumgart.

Discussion.

*The Toxic Effects of I-131:*

Dr. Gorbman—Pathologic and Metabolic Consequence of High Radiation Dosages in Mice.

Brookhaven and Memorial Hospitals—Distribution of I-131 in Human Beings.

Drs. Koch and Talbot—Porphyrins.

2.00 P. M.—General Session

*Presidential Address:*

Dr. Samuel F. Haines—The Influence of Research on the Modern Treatment of Exophthalmic Goiter.

*Cancer of the Thyroid:*

Dr. B. J. Duffy—Cancer of the Thyroid in Children.

Dr. Cattell or Dr. Frantz—Treatment of Cancer of the Thyroid.

4.00 P. M.—Annual Business Meeting

Saturday—March 11th
9.00 A. M.

*Non-toxic (Sporadic or Endemic) Goiters:*

Dr. I. Greenwald—Endemic Goiter: Deficiency, Intoxication or Infection.

Dr. George Curtis — Iodine Metabolism in Non-toxic Goiters.

Dr. F. Andrews—Title not announced.

Dr. J. Stanbury—Title not announced.

Dr. W. C. Thornell—Title not announced.

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## Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

### Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

### Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

### Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

### Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

## Courses in Anesthesiology for General Practitioners

The Maine Society of Anesthesiologists, in coöperation with the American Society of Anesthesiologists, is offering refresher courses for general practitioners. Membership in the society is not essential.

Efforts will be made to make the program flexible so that the practicing physicians may secure the training necessary to fit their individual needs. The duration of instruction will be arranged according to individual circumstances—e.g., one-day sessions at weekly intervals, or continuous courses of a week's duration or longer.

Instruction in all or any of the phases of Anesthesiology will be available, including Transfusion and Oxygen Therapy. Courses will consist of lecture, demonstrations and, when possible, anesthetic management of patients under supervision Fees will be restricted to an initial registration fee of five dollars.

Three training centers in the state have been designated as follows:

Bangor — Instructor — Dr. Clement Dwyer, Director of Anesthesia, Eastern Maine General Hospital.

Lewiston — Instructors — Dr. Gilbert Clapperton, Director of Anesthesia, Central Maine General Hospital. Dr. Dominique Martel, Director of Anesthesia, St. Mary's General Hospital. Dr. Leslie Parent, Associate Director of Anesthesia, St. Mary's General Hospital.

Portland — Instructors — Dr. John R. Lincoln, Director of Anesthesia, Maine General Hospital. Dr. Robert W. Agan, Assistant, Department of Anesthesia, Maine General Hospital.

Physicians interested in such a program are urged to contact the center nearest to them for further information. Scholarships are available for Maine physicians through the Bingham Fund for those interested in pursuing such courses for one week or longer.

Gilbert Clapperton, M. D., *President,*
Maine Society of Anesthesiologists.
John R. Lincoln, M. D., *Secretary,*
Maine Society of Anesthesiologists.

## Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Richard L. Chasse, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

## American Board of Obstetrics and Gynecology Residency Training Requirements

The American Board of Obstetrics and Gynecology has not made nor is it contemplating any changes in its residency training requirements, despite rumors of an increase in training years. Eligibility requirements remain the same, namely, three years of acceptable formal training, followed by at least two years of post-training practice in the specialty.

Hospitals are inspected and approved for training jointly by the Council on Medical Education and Hospitals of the American Medical Association and this Board. Approvals are granted for training periods of one, two and three years depending on the available facilities and the findings of the survey inspections.

This Board has no objection to residency services being arranged by hospitals for periods longer than three years, unless this dilutes the candidate's clinical training opportunities too much during the first three years. However, the Board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two years of post-training practice.

The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community. The only exception to this ruling is in the case of men advancing from their training into full-time teaching positions. These men then must complete at least two years in such positions.

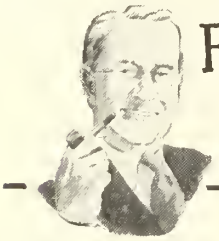
Copies of the Bulletin of this Board, outlining the above requirements in more detail, are available to hospital administrators or to candidates, upon application,

Paul Titus, M. D., *Secretary,*
*American Board of Obstetrics and Gynecology,*
1015 Highland Building,
Pittsburgh 6, Pennsylvania.

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From where I sit *by* Joe Marsh

## Sure You Haven't a "Blind Spot"?

*As I was driving down Main Street last Saturday, another car swung out right in front of me. It turned out to be Buck Blake. He wasn't going fast. It was just that he had something else on his mind at that particular moment.*

Buck's really one of the nicest fellows I've ever known. But, sometimes he gets to day-dreaming on the road. He sort of gets a "blind spot" to what's going on about him!

*Now, lots of normally considerate folks have their "blind spots." It could be anything from day-dreaming while driving a car to humming out loud at the movies.*

From where I sit, it's mighty important to be on guard against your own "blind spots." The other fellow has a right to his "share of the road," too—whether it's having a taste for a temperate glass of sparkling beer or a desire to listen to some classical music if he wants to.

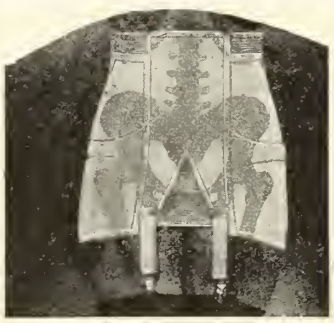
Joe Marsh

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# ENDOMETRIOSIS

Eugene E. O'Donnell, M. D., Portland, Maine*

This subject is presented as the experience of a general surgeon, and as part of a general surgical practice. It is not unusual for the surgeon to be confronted with the problems of diagnosis and treatment of this disease, not only in the preoperative and postoperative stages, but often times unexpectedly at the operating table.

Although the chocolate cyst has been recognized for a long time, and lesions of similar structure were found in the rectovaginal septum and other parts of the pelvis, Sampson in 1921 was the first to postulate as to the cause of this condition. He suggested that these lesions were due to implantation of the living endometrial cells on the surface of the ovary and peritoneum. These cells were supposed to be cast off into the cavity of the uterus during menstruation, pass along the tubes, and finally settle and grow at the site of the future lesion. Histologically, these implants consist of gland-like spaces surrounded by columnar epithelium and separated by the cellular stroma, characteristic of endometrium. Hemorrhage occurs each menstrual period, so that the lesion contains fresh blood or blood pigment. When the ovarian cyst thus created ruptures, the contents are scattered through the pelvis, setting up new endometrial implants. Sampson's theory was supported by the experimental work of Jacobson. Uterine curettings from rabbits in heat were sown in the abdominal cavity, and implants were formed in 83% of the animals. Similar results were obtained in monkeys. The implants were identical with those seen in human beings.

Mayers of Germany and Cullen in this country believed that the entire epithelial apparatus of the female pelvis and the pelvic peritoneum, could, as a result of ovarian hormone stimulation, cause this tissue to evert to its original function and form epithelium lined cavities. He based his hypothysis on the well-known fact that as a result of such stimuli as chronic inflammation, the flattened serosal cells in either sex may become cuboidal, invade the underlying tissue, and surround gland-like spaces.

Kind believed that the chocolate colored blood cysts of the ovary are of follicular origin. He felt that these cysts derived from graffian follicles may be lined by epitheleum that cannot be distinguished from that of the endometrium, as they are both of common origin.

Watkins showed that in the retroverted uterus, currettage just before laporotomy showed a retrograde escape of blood into the cul-de-sac, and that where the tubes were patent, laporotomy in the patient with a retroverted uterus directly after menstruation, showed retrograde menstruation in varying amounts. He was able to recover endometrial glands from the

* Read at the Fall Clinical Session of the Maine Medical Association, Portland, Maine, November 1, 1948.

menstrual blood in two instances. It was his opinion that there is some connection between the frequency of cul-de-sac endometriosis and retrodisplacements.

Meigs believed that menstruation through the hormones estrogen and progesterone causes a growth and functional change in the endometrium. This change, a preparation for pregnancy, should, in a normal female, be utilized. In the modern woman, late marriage, contraception, and the like, allow a prolonged menstrual life without interruption. In too prolonged and uninterrupted stimuli of the hormones estrogen and progesterone, unutilized cells of the celomic cavity from which the normal endometrium develops, may undergo metaplasia, and thus produce endometriosis. Most observers are agreed that the incidence of sterility in this disease is relatively high. There is some question as to which factor is the cause and which factor is the effect. The incidence of the disease is much higher among private than among ward patients.

Henderson found endometrial hyperplasia in the cavity of the uterus in 25% of 82 cases of adenomyosis, suggesting that a disturbance of estrogen production may be an etiological factor. The occurrence of these lesions is confined to the active reproductive period in the patient's life. They are said occasionally to undergo malignant change, and Sampson believes that some of the malignant cyst adenomas of the ovary arise in this way. This is particularly interesting in view of the response of some of these tumors, and of endometriosis to androgens.

Direct or internal endometriosis, known as adenomyosis, is thought today by many competent observers to be a separate clinical entity from so-called indirect or external endometriosis, that is, abdominal endometrial implants outside the uterus. This thesis is supported by many prominent gynecologists, including Greenhill. Brines and Blain felt that the two lesions, adenomyosis and endometriosis, are rarely associated. In the older literature, and even recently by reports coming from general surgical groups, such as the Lahey Clinic and the Fallon Clinic of Worcester, the two terms, adenomyosis and endometriosis, particularly the latter, are often used so loosely that it is well, I believe, at this time to consider them together, to point out, that while in some cases they exhibit marked difference in clinical symptoms and signs, and call for different surgical treatment, there are many points of similarity, and to show, that contrary to most observers, they are so frequently coexistent as to suggest some significance. We will also suggest certain refinements in the medical and surgical management in these cases. It is well known that external endometriosis may involve the uterine adenexa, the pouch of Douglas, the bladder, the ureters, the abdominal wall, and intestines, and that the clinical manifestations depend largely upon the location and extent of involvement, and are aggravated at the time of menstruation.

## CHARTS

1. Major Abdominal Operations Performed At the Mercy Hospital by the Author, from April 8, 1943, to October 25, 1948:

| *Year* | *Number* |
|---|---|
| 1943 | 100 |
| 1944 | 164 |
| 1945 | 184 |
| 1946 | 175 |
| 1947 | 172 |
| 1948 | 173 |
| Total | 968 |

Number of pelvic operations, exclusive of repair: 197.

Endometriosis: 53 cases (27%).

Proven acute appendicitis in women in the child bearing period: 64 cases.

2. Endometriosis 53
   Internal (adenomyosis) 26
   External 27

27+% of all major pelvic surgery exclusive of vaginal plastic procedures.

3. Endometriosis (external), 27 cases:
   Age incidence:

| | |
|---|---|
| Youngest | 21 years |
| Oldest | 47 years |
| Average | 36 years |

4. Previous operation in cases of endometriosis (external) of the 27 cases:
   7 had had previous operations:

| | |
|---|---|
| Appendectomy | 2 |
| Diag.: Chronic appendicitis | |
| Conservative pelvic operations | 5 |

Average relief of symptoms: 9 years.

Indicating that conservative pelvic surgery was worth while.

5. Symptoms in endometriosis (external):

| | |
|---|---|
| Lower abdominal pelvic pain | 14 cases |
| Low back pain | 6 cases |
| Pain in hip | 2 cases |
| Excessive bleeding | 7 cases |
| Brown discharge | 3 cases |
| Pelvic tumor | 2 cases |
| Abnormal bleeding moderate | 1 case |
| Nodule in previous operative scar | 1 case |

6. Four cases in this group operated upon with mistaken diagnosis of acute appendicitis:

   Ages: 21, 22, 28, 34

| | |
|---|---|
| Right rectus | 2 |
| Midline | 2 |
| Resection of ovaries | 4 |
| + suspension | 2 |

7. Remaining cases 23

| | |
|---|---|
| Chronic complaint | |
| Conservative pelvic surgery | 7 |
| Radical pelvic surgery | 16 |
| Conservative surgery total | 10 |
| Average age | 27 |
| Radical | 16 |
| Average age | 41 |

8. In the group of 17 cases of endometriosis (external) whose uterus was available for pathological examination, 7 or 43+% showed adenomyosis.

9. Adenomyosis — Endometriosis (internal), 26 cases:

   Age incidence:

| | |
|---|---|
| Youngest | 23 years |
| Oldest | 54 years |
| Average | 41 years |

   5 years older than the previous group

If we were to exclude the 54-year-old patient, the ages of the 2 groups would be closely approximated.

10. Adenomyosis:

    Symptoms:

| | |
|---|---|
| Excessive bleeding | 21 |
| Pelvic tumor | 1 |
| Low back pain | 4 |
| Lower abdominal pain | 11 |
| Brown discharge | 1 |
| Previous pelvic operations | 2 |
| Repair | 1 |

11. Treatment in adenomyosis:

| | |
|---|---|
| Hysterectomy with oophorectomy | 18 |
| Hysterectomy without oophorectomy | 8 |

12. Other coincidental pelvic pathology:

| | |
|---|---|
| Fibromyoma | 1 |

    Sterility:

| | |
|---|---|
| Endometriosis | 23% |
| Adenomyosis | 8% |

From these observations it would appear that, contrary to the opinion of many recent observers, the high coexistent incidence of adenomyosis, namely 43%, in the proven cases of endometriosis suggests the close association of the two conditions, namely internal and external endometriosis, and suggests also that they may be, as originally thought, different manifestations of the same process. The 27% incidence of endometriosis in a series of almost 200 pelvic operations, exclusive of repair work, calls attention to the high incidence of this disease.

During this same period from which 53 cases of endometriosis are reported, 64 cases of proven acute appendicitis in women in the child-bearing period occurred in the surgical practice of the same observer. A more careful follow-up of those cases of suspected appendicitis which were operated upon through a right rectus incision, where the true pelvis was not adequately visualized, seems in order.

Many of the technical difficulties encountered at operation, although not tabulated, and some of the postoperative complications, are still fresh in the mind of the author. In women in the child-bearing period who have menopausal symptoms, and who have minimum evidence of endometriosis, estrogens may tend to aggravate this condition. Likewise, postoperative estrogen therapy in endometriosis is contraindicated. All women in the child-bearing period who have low abdominal discomfort, bladder irritability, pelvic, rectal, and other gastrointestinal symptoms, including chronic constipation, should be considered as potential candidates for this disease. Tender nodules in a previous operative scar should be regarded with suspicion. One should be mindful of low back or sciatic pain. If on rectal or pelvic examination one finds ovarian tenderness, tenderness in the posterior cul-de-sac, thickening of the utero-sacral ligaments, or a tender uterus fixed in retroversion, the diagnosis of endometriosis is very strongly suggested.

In the operative management of these cases, we are in a position as physicians, at the present time, in which we found ourselves formally in many other diseases: that is, the pathology of the disease is adequately described, and the signs and symptoms in most instances well defined. The treatment, on the other hand, is in a make-shift stage where frequently one has to pay a price for not being radical enough, or being too radical. The removal of the reproductive organs in a female patient of 40 is not ordinarily considered a serious interference or normal physiology. In this group, many of whom have had long standing ovarian pathology, the normal ovarian function is largely taken over by the other ductless glands at a relatively early period. This is illustrated by the present series, where only one of the cases operated upon has felt the need for estrogen therapy. In the young woman where this physiological adjustment has not had sufficient time to take place, removal of the ovaries is, even aside from the sterility factor, a major catastrophy, and here conservative surgery is in order. Our small experience with these cases tends to indicate that one may expect relatively long term palliation—as in this group, approximately ten years.

*Continued on page 69*

# EPIPHYSEAL INJURIES*

Leo J. McDermott, M. D., Portland, Maine

The purpose of this paper is to review the natural phenomena which follow injury to specific portions of the youthful skeleton. It does not represent any original investigation or end result analysis of the author. However, the illustrations have been chosen from cases treated by the author to emphasize special points discussed in the text.

Epiphyseal injuries are fractures in which the fracture line lies wholly or partly within the epiphyseal line. The epiphysis may be wholly or partly separated from the shaft, often times carrying with it fragments of the adjacent diaphysis. The condition is confined to definite age groups from birth to twenty years or thereabouts, being somewhat less common under four and over fifteen. Any of the epiphyses of the long bones may be involved but the most common in order of their frequency are the distal tibial, distal radial, proximal humeral, and distal femoral. Epiphyseal diseases of nontraumatic origin are not included in this discussion. Individual consideration must be given to each of these groups inasmuch as the problems presented by the types of injury under discussion vary depending upon whether the bone involved is one that bears weight and the contribution of the specific epiphysis to the normal growth quotient of the extremity.

The ultimate diagnosis in epiphyseal injuries can be made only by X-ray, although it must be kept in mind that considerable damage to an epiphysis can result without producing definite changes recognizable roentgenogically at the time of the injury.

There is a great deal of difference of opinion as to what is necessary as far as treatment is concerned. Practically all of the textbooks dealing with such problems insist upon the necessity of complete anatomical reduction of the displaced epiphysis, stating that failure to attain this is one of the outstanding causes of subsequent growth disturbances and deformities. A review of the literature, however, reveals an almost universal opinion that is quite the contrary.

Fundamentally, in all of the epiphyses under discussion there are three types of injuries, as outlined by Aitken for the distal tibia. (Fig. 1)

A. The line of separation is parallel to and proximal to the cartilagenous plate and fragments of the diaphysis are carried away with the epiphyseal mass. This is the most common type and the one in which the greatest displacement is seen. It is attended quite commonly by subsequent premature ossification of the epiphysis but fortunately, in most instances this is rarely of clinical significance.

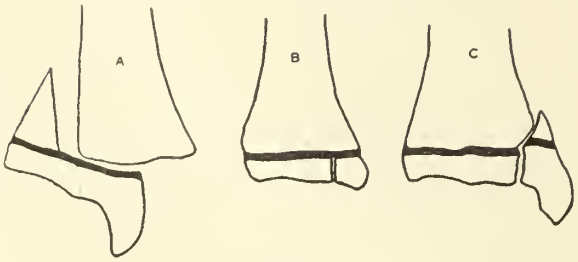



Fig. 1

Types of epiphyseal separation as shown by Aitken. These are seen in all epiphyses and not confined to the tibia alone, this bone being used only to illustrate the point.

B. The fracture crosses the epiphysis but there is no fracture of the epiphyseal plate as demonstrated by X-ray. Displacement is usually slight or nonexistent but according to some authors the epiphyseal plate is damaged in about 40 percent of the cases.

C. The fracture extends through the epiphysis, cartilage plate, and shaft with little displacement and the plate is usually crushed so that, deformities and growth disturbances are likely to be far more common.

Pure epiphyseal separation is seen in the younger children while epiphyseal separation with associated fracture of the diaphysis is more likely to occur in the older group. The line of separation is between the calcifying cartilage cells of the epiphyseal plate and the diaphysis. Therefore, the epiphyseal cartilage and its blood supply are not necessarily damaged.

The distal tibial epiphysis is the most commonly involved, as mentioned above, and the fact that the bone is one which bears weight makes it important that early weightbearing be avoided inasmuch as such is more likely to be attended by further damage to the cartilage plate. In "Type A" deformity is rare. It is said to be as high as 40 percent in "Type B," while deformity may be expected in "Type C" injury. Such deformities are entirely dependent upon the amount of damage to the epiphyseal plate. Particularly in younger children, they may necessitate subsequent corrective osteotomy or epiphyseal fusion of one or both sides. (Figs. 2, 3, 4)

The distal radial epiphysis ossifies in the neighborhood of fifteen years in the female and seventeen years in the male. The proximity of the patient's age to the above at the time of injury seems to make little or no difference in the amount or degree of de-

* Read at the meeting of the New England Fracture Committee of the American College of Surgeons, Boston, Massachusetts, March 10, 1950.



Fig. 2a

A-P view of left ankle with "Type C" epiphyseal injury in fifteen-year-old male. There is no displacement of the fragments of practical importance.

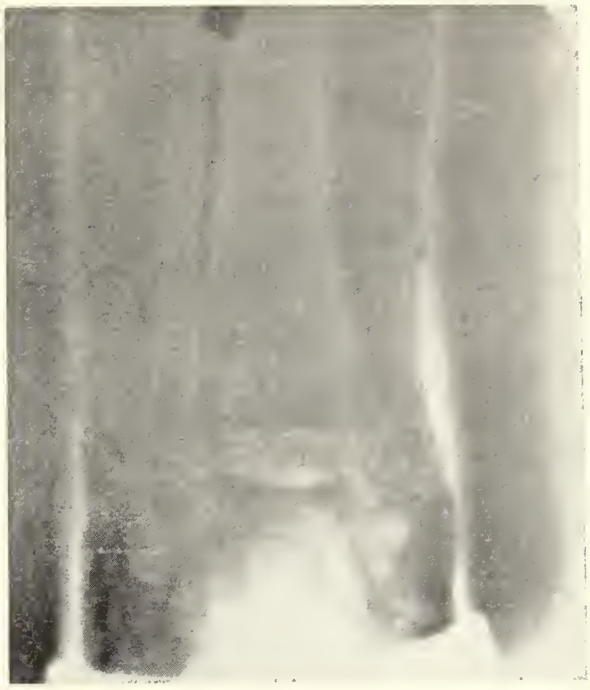


Fig. 2b

As seen in long plaster cast applied without anesthesia, there has been slight alteration of position of the medial malleolus. There is displacement of the large epiphyseal diaphyseal mass of the malleolus. The contour of the ankle mortise now appears to be altered. Should an attempt be made to correct this by operation and internal fixation of the displaced malleolus? The subsequent views illustrate what took place without it, the patient being allowed to remain in the original plaster for two months.

formity. Temporary retardation of growth is quite common but generally is of no clinical significance. (Fig. 5) However, I recall very vividly a child at the Children's Hospital in Boston, who at the age of six had a partial displacement of her distal radial epiphysis which was reduced perfectly. Subsequently, she developed a marked radial bowing deformity with complete arrest of growth at both ends of the radius. At no time could any damage to the proximal epiphysis be seen by X-ray. Eventually, correction of the deformity necessitated an epiphyseal arrest of the lower end of the ulna with wedge osteotomy of the ulna. Although this gave a considerable degree of permanent shortening of the forearm she had no abnormality of alignment.

At the proximal end of the humerus the injury is usually of "Type A" and a great deal of difficulty is encountered in obtaining an accurate reduction. There is commonly some bowing of the shaft for a few months but this gradually corrects itself by the natural process of growth and re-arrangement. Traction and closed manipulation are quite commonly unsuccessful and open reduction is frequently necessary because of the marked degree of displacement. At the time of open reduction, great care must be exercised in instrumental and manual manipulation for fear of damaging the cartilage plate. The driving of pegs, nails, and screws through the plate for fixation may under certain circumstances bring about rapid ossification. The insertion of a Kirschner wire across the epiphyseal line is not likely to cause any damage but it should not be passed through the cortex of the shaft on the side opposite the one through which it enters the epiphysis. Premature ossification occurs frequently at the upper end of the humerus and the amount of shortening is much greater than seen usually in injuries to the radial and tibial epiphyses. This shortening, although more common and greater in amount than seen elsewhere, is less noticeable and of less handicap generally than it would be in the forearm or lower leg where arrest of growth in one bone gives rise to deformity as a result of continued growth of the other bone in this part. (Fig. 6)

Damage to the distal femoral epiphysis is quite uncommon but inasmuch as this epiphysis contributes the outstanding proportion of length to the leg, arrest of growth is of particular importance. Portions of this or any of the other epiphyses may close prematurely following damage, and valgus deformity of the knee in the growing child is not uncommon as a result of premature closure of the lateral portion of the epiphyseal plate. Early closure and deformity

from crushing of the cartilagenous plate in a fall from a considerable height is seen with no definite damage recognizable by X-ray until premature closure becomes a definitely established fact. Here, as in the tibia, multiple operations might be necessary to correct the deformity depending upon the age of the child, for the younger the child, the more marked is the deformity and shortening. In extreme cases leg lengthening may become necessary or equalization of the leg length may be obtained by epiphyseal arrest on the normal side. Surgical completion of the closure of the epiphysis on the damaged side, may be carried out in older children following careful observation to determine how much epiphyseal interruption will be necessary on the noninjured extremity in order to slow down its growth and result in extremities of equal length at the end of the period of skeletal maturation. (Fig. 7)



Fig. 2c

Films showing excellent union in most desirable position eight weeks after injury. The ankle mortise appears normal and the separated fragment is becoming well incorporated in the tibia from which it had become temporarily separated. There is some suggestion of partial fusion of tibial and fibular epiphyses and check of the uninjured ankle showed a like situation there.



Fig. 3b

Post-reduction films taken through plaster showing complete replacement of the tibial epiphysis. Correction was accomplished with ease under general anesthesia by manual manipulation consisting of traction on the foot and bringing the latter forward to carry the epiphysis with it.

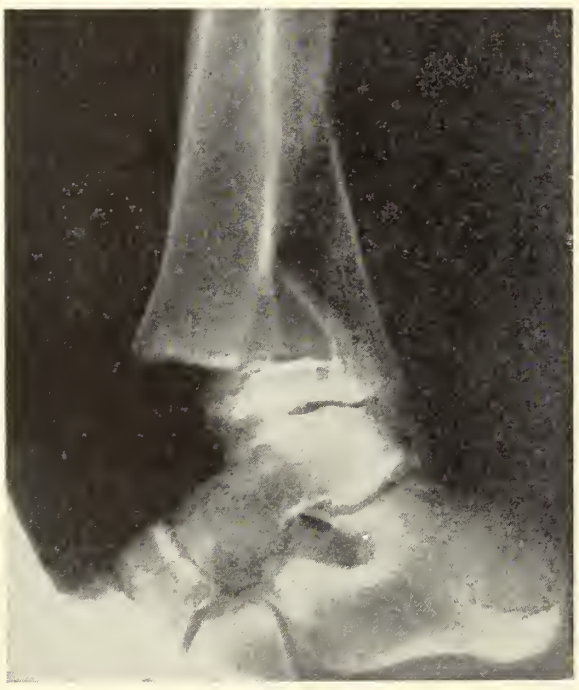


Fig. 3a

Original lateral view of displacement of distal tibial epiphysis associated with fracture of fibular shaft.
Type A—Male—13 years.



Fig. 3c

Status six weeks after injury showing no definite epiphysal disturbance thus far, motions of ankle can be carried through a complete range.

The literature is well filled with cases which illustrate what appears to be a definite fact, namely malposition and failure to obtain anatomical reduction are not responsible for deformity. The primary cause of deformity is the crushing of the cartilagenous plate which damage is entirely out of our control. Usually it is a result of the original injury, although there are probably instances where repeated and unwise manipulation may play a role. Anatomical reduction is not necessary, for the displacement is ordinarily corrected by nature in a few months and such correction is preferable to osteotomy, etc. This is particularly true inasmuch as, if crushing of the epiphysis has occurred at the time of injury nothing will prevent deformity and if no crushing has occurred the epiphysis will grow normally although the alignment with the shaft may be poor for several years.

Although from a physiological and practical point of view anatomical reduction is not necessary an attempt should be made to reduce displacements provided this can be accomplished without repeated vigorous manipulations or osteotomy. Some information can be obtained as to the expected behavior of



Figs. 4a and b

A-P views of both ankles of fifteen-year-old male demonstrating an injury to the distal tibial epiphysis in (a). This is of Type B classification without displacement and was sustained as the result of a rotatory torsion force while sliding into second base. Treatment consisted of immobilization in long plaster cast applied without anesthesia. This was removed after one month and patient went about with crutches with no weight bearing allowed on the side of his involvement until three months after injury. Eventually he had normal motion without growth interference.



Fig. 4d

Films of the ankle three years after injury. The distal epiphyses of both tibia and fibula have united with their respective shafts. There has been no disturbance of growth as shown by equal leg length and normal bony contours.



Fig. 4c

Status of the involved epiphysis eight weeks after injury when cast was removed. The vertical split in the epiphysis from joint surface of the ankle to the cartilage plate is hardly discernible.

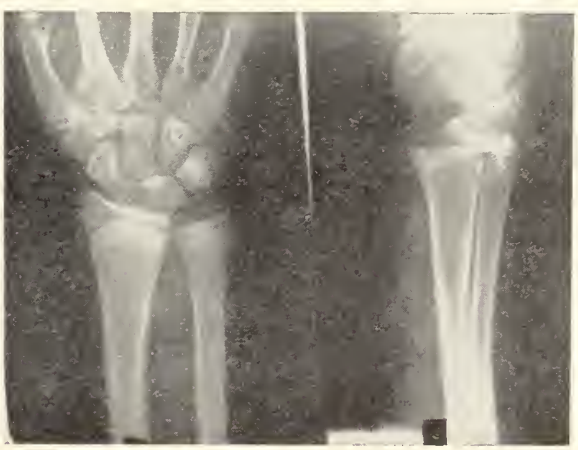


Fig. 5a

A-P and lateral views of left wrist of ten-year-old male child showing dorsal displacement of the distal epiphysis of the radius—Type A. There is also a chip fracture of the ulnar styloid.

a previously damaged epiphysis in the older age groups by X-ray examination of the opposite epiphysis, where if ossification is seen, no shortening will develop on the damaged side. Regardless of the amount of displacement, epiphyses, as a general rule, return to their normal position by a natural process within two or three years of the injury at the most. New bone is laid down on the side of the defective contact and the shaft built up to gradually bring it into proper relation to the displaced epiphysis. There is an accompanying absorption of bone of the shaft opposite the area where the diaphysis is being built up. Nature brings about growth in the diaphysis in such a fashion that it appears the shaft is seeking out its displaced end though attainment of this goal may necessitate a round about path. Bowing results from this reparative process. This bowing then moves up the shaft each year to the extent of the new bone laid down at the epiphyseal line and as it makes this change in relative position, there is a gradual decrease in its amount. The deformities from arrest of growth which are seen are relatively rare and as mentioned

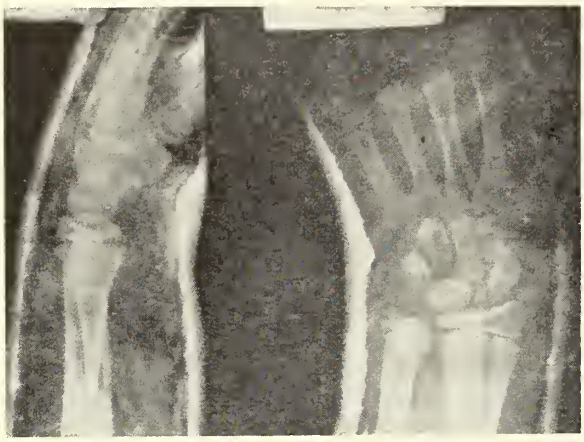


Fig. 5b

Check A-P and lateral films of the wrist in plaster splints following closed manipulation under general anesthesia with excellent correction of the displaced radial epiphysis in the A-P view. The lateral projection shows the reduction to be slightly imperfect and representing a mild dorsal slip of the radial epiphysis while splints were being applied. The hand is in slight palmar flexion with no radial or ulnar deviation.

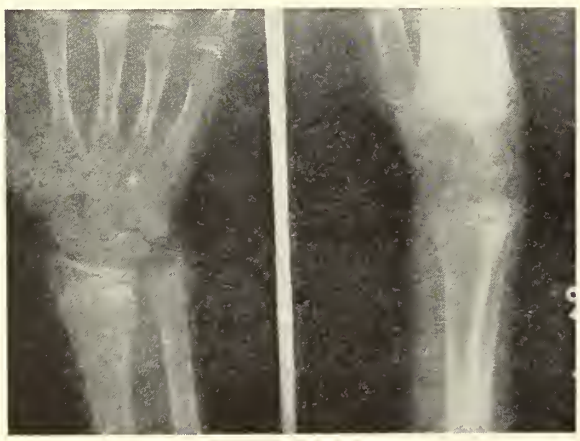


Fig. 5c

Films of left wrist taken one month after injury at the time splints were removed. As a result of bony rearrangement with building up of the distal shaft of the radius on its volar aspect. The previously displaced distal radial epiphysis is being brought gradually into essentially normal alignment with the diaphysis.



Fig. 6a

Completely displaced proximal epiphysis of humerus. Male, age 14 years. Sustained in football game. Type A.



Fig. 6b

Position in plaster cast following open reduction after a single closed reduction had been done without success. No internal fixation was used other than interrupted silk sutures in the periosteum. Reduction was accomplished with relative ease by manipulation of shaft while an assistant held the epiphyseal mass to prevent rotation. Mild slipping took place during application of plaster shoulder spica but any attempt to change this position would not be wise.

previously are due to epiphyseal crushing at the time of injury or as a result of factors mentioned just previously. They are not in any way attributable to mal-position. It is quite difficult even for a physician to believe that some of the untreated and badly displaced epiphyses can re-align themselves as beautifully as they do. However, it would not seem wise to fail to strive for as accurate reduction of the displaced epiphysis as is possible by careful means, inasmuch as considerable difficulty in the way of legal entanglements may ensue in many instances where resultant deformities may be looked upon as neglect and manifestation of poor judgment on the part of the physician. In many instances the decision as to when to stop in the treatment of epiphyseal injuries is most difficult and a considerable tax on the accumulated judgment and background of the physician.



Fig. 6c

Status six months after injury. There has been a great deal of activity at the site of injury, shaft and epiphysis are well realigned with very slight and decreasing deformity. The shoulder functioned in normal fashion.

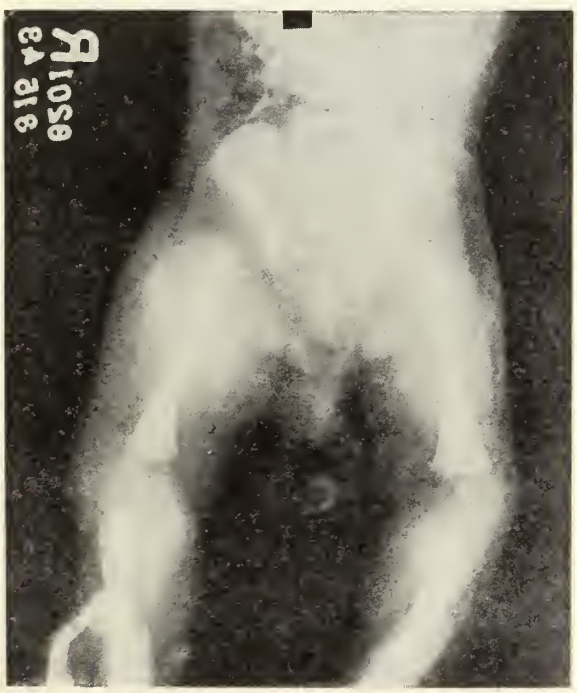


Fig. 7a

*S. D.* Male infant delivered by difficult breech extraction, right knee noted to be swollen. Film taken 1 week after birth was not recognized as showing considerable lateral displacement of distal femoral epiphysis on the right.



Fig. 7b



Fig. 7b

*S. D.* A-P and lateral films at 6 weeks of age showing lateral and posterior displacement of distal femoral epiphysis and attempt on part of nature to bring the diaphysis into a more normal relationship to the epiphysis. Child was first examined by an orthopaedist at this time because of knee flexion deformity and no treatment was advised.

At the time of injury, parents should be told that:

1. The area involved is a growing end of the bone.

2. The amount of damage to the growing cells cannot be determined.

3. X-rays do not enable one to visualize the possible harm to microscopic cellular leements.

4. Disturbance in growth may result depending upon the degree of influence on the growing elements by the injury.

5. The type of effect may be stimulative with increased length or arrestive resulting in shortening. It may be symmetrical in its distribution across the epiphyseal line, thus producing no change in alignment but it might be asymmetrical with resultant angulation deformity which may or may not have along with it shortening, increased length or no effect on longitudinal growth.

6. Predications cannot be made at the time of injury and probably not for several months or years therafter.

7. It is important that the child should be checked clinically and by X-ray regularly, but not of necessity, frequently, over a period of several years.

8. Those abnormalities of growth which do occur are in most cases mild and cause no interference with function or obvious cosmetic defect.

9. When defects likely to give rise to deformity and disability are recognized early, the situation can be solved more readily. In such instances the plan of attack allows a wider choice of approaches from which a superior end result will be obtained.

One must realize that nature is our greatest ally and continually moves toward spontaneous alignment of the epiphysis with the diaphysis from which it has become displaced by trauma. This is often accomplished with a striking degree of excellence in the presence of a large handicap such as is seen in cases where treatment was not sought soon after injury or where the nature of the difficulty went unrecognized. The best end results are seen when treatment has been prompt, judiciously carried out and followed through. However, the occasions are numerous when the physician must curb any desire to attain mere roentgenologic perfection of alignment at the cost of poor final result. Over treatment is as likely to give essentially the same undesirable handicaps as under treatment. The best solution of the problem is found when the moves of the doctor take advantage of the normal response of bones to trauma and complement it but nothing must be done which will minimize or interrupt this coöperative effort.



Fig. 7c

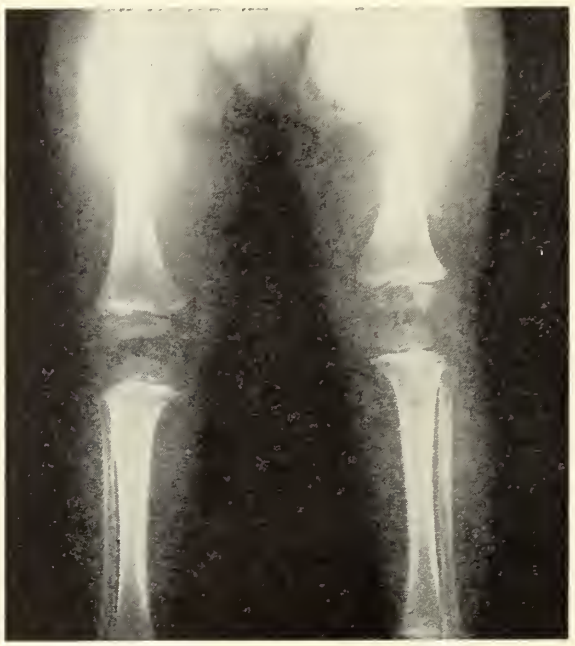


Fig. 7c

*S. D.* A-P view of both legs and lateral of femur on right at 5 years of age followed without treatment. No clinical deformity recognizable. Full range of motion was present in knees. Lower femoral epiphysis now shows normal relationship to shaft. There is a slight increase of anterior bow of femoral shaft with ⅜″ shortening of the right leg.

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*Continued on page 85*

# MULTIPLE PRIMARY CARCINOMATA

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Multiple primary malignant neoplasms are regarded, today, by many workers in the field of cancer research, as distinct pathologic entities. Billroth, to whom the credit is given for having first described them, believed that they were merely biologic curiosities and as such very rare. Yet he was sufficiently astute to realize their probable implication, and accordingly, laid down three criteria by which they might be differentiated from recurrent or metastatic disease. These criteria were so inflexible that even an obviously malignant neoplasm might fail to satisfy the third postulate, viz.: "that they must each produce their own metastasis."

In the ensuing years the successful inoculation of malignant disease into certain susceptible strains of mice and other laboratory animals, with the consequent development of local and general immunity, seemed to confirm the idea that multiple primary lesions were merely the result of accidental coincidence or chance. The medical metaphysics of that period postulated many theories of the cause of cancer. Three of these theories deserve special mention. First:—that the cause of cancer was a specific cancer cell (a cytological entity); second:—that every cell must spring from a cell of its own kind; and third:—that the cause was the result of fetal rests and misplacements. The first two statements are actually one since they complement each other. Consequently, these theories combined with the observation of the susceptibility-immunity mechanism served as the basis for the unicentric idea of the production and expansion of malignant affections.

However, it had been noted for many years that various benign and a few undoubted malignant lesions were by nature multiple in their origin e. g. Uterine Fibromyoma, Kaposi's idiopathic hemorrhagic sarcoma, multiple myeloma (?) chloroma. From these observations there evolved the theory of the multicentric origin of neoplastic disease.

This theory of multiple origin postulates the concept of two or more centers of potentially malignant cells, capable of dividing. They may be adjacent, in which case their coalesence determines a single primary tumor, or they may be remote and thus produce multiple growths, synchronously or metachronously.

It would seem that attempts to explain this phenomenon include such ideas as (1) multiple fetal rests and misplacements; (2) an, as yet, unexplained influence of tumor cells on susceptible normal cells; and (3) a lateral extension of a growing tumor, by a "passing over" of normal resistant cells with a consequent remote focus of the original tumor in a more congenial soil. So strongly has the theory of the unicentric origin of tumor growth become rooted that Ewing[1] declares that "the rather common occurrence of two or more tumors in different organs of the same subject suggests nothing more than the accidental coincidences in several organs of the general etiological factors in the genesis of tumors."

The increasing discovery of multiple tumors both clinically and at necropsy has revealed a varying ratio of multiple to single primary malignant growths, which is greater in many instances than the expected incidence based on the law of probability. This incidence has been reported as ranging from 0.3% to a high of 6.8%. The average for the United States is 3.9%. The combined United States and European average is 1.84%.

In the elucidation of this problem of multiple occurrence, the existence of a segment of population is predicated which is susceptible to cancerous invasion, in virtue of the possession of a cell type, potentially malignant, and inherently capable of division or determined to division by intrinsic or extrinsic carcinogenic agents under appropriate circumstances. Laboratory research, concerning itself with the problems of the experimental production of carcinomatous disease in animals by the various carcinogens, ranging from chemical, thermal, physical and hormonal factors, must be aided in the final solution of this problem by an unimpeachable body of statistics drawn from the bedside and the necropsy table.

With this idea in mind, it seemed worth while to review the admissions of cancer patients to the Mercy Hospital for the years 1943 to 1949, inclusive. Accordingly, the records of five hundred thirty-two (532) patients admitted to the hospital for diagnosis and treatment of malignant diseases were examined painstakingly. One hundred fifty-seven (157) of these cases were rejected because of admission for metastasis, recurrence and terminal care; or because the final diagnosis was based on X-ray examination alone or exploratory laparotomy with or without biopsy of peritoneal nodules or mesenteric nodes. No case records were accepted for study unless a positive microscopic diagnosis of the primary tumor or tumors was unequivocally demonstrated. Careful screening of the remaining three hundred seventy-five (375) cases revealed a total of thirty-seven cases of multiple synchronous and metachronous malignant disease. A closer scrutiny of these remaining records resulted in the rejection of nineteen cases on the basis that they could represent metastasis or complex tumor formation or instances of metaplasia.

Five instances out of six cases of bilateral papillary cystadenoma were rejected because of uncertainty of the possibility of metastatic origin. The sixth case was retained because of its metachronous association with a rectal lesion of different morphology. The remaining fourteen (14) discarded cases were made up of mammary gland, cervical and gastro-intestinal lesions in which the problems of metaplasia, metastasis or direct extension could not be satisfactorily ruled out.

Table I—Age and Sex Incidence

| Sex | Number of Cases | Average Age First Primary | Average Age Second Primary |
|---|---|---|---|
| M | 6 | 60.3 years | 63.3 years |
| F | 18 | 65.5 years | 69.8 years |

Before considering the instances of multiple disease it might be of interest to note briefly some interesting data with regard to the entire number of case records accepted for study. Of the three hundred seventy-five cases examined, two hundred forty occurred in women and one hundred thirty-five in men; an incidence of nearly two to one. In two hundred nine cases where accurate information concerning the marital partner was available, there were eight instances of carcinomatous disease; an incidence of 3.8%. Sixty-five family histories accounted for eighty four individuals having had cancer. Of this number eight families yielded twenty-seven cases, giving a family incidence of 20.5%. In the patient histories there were found a total of fifty nine cases of benign synchronous and metachronous lesions giving an incidence of 15.7%.

The over-all age of the three hundred seventy-five patients was 58.4 years. The average age of the female patients was 55.3 years, while that of the male patients averaged 61.2 years. The youngest and oldest male patients were aged respectively 8 and 85 years and of the female patients 13 and 86 years.

Of the eighteen cases finally selected as fulfilling the criteria of Warren and Gates[2] eight were multiple synchronous and ten were of the metachronous variety. This small number gives, nevertheless, an occurrence rate of 4.8%. We are confident that a less stringent scrutiny of the available material, yet keeping well within the criteria laid down, would have yielded a rate of better than 6.0%.

The average patient age of those with multiple lesions of this group was 63.6 years. This figure was about five years more than that of patients having single tumors and is also above the national average of 50.4 to 62.1 years. The average age of second primary admission was 66.9 years giving an interval duration of 3.3 years.

There were twelve females and six males in the series giving a ratio of 2 to 1, which is essentially the same as in those of the single primary group. Sex occurrence in national averages is very variable but seems to favor a slight preponderance of males, which is a wide variance from our figures of two females to every male. Only 21.4% of our cases gave a family history of malignant disease against a general average of 26 to 29%.

In the distribution of the lesions and their combinations one with another, there was a conspicuous lack of any definite pattern of organ incidence or behavior. There were no instances of bilateral breast involvement and only one of stomach and colon. As previously noted five cases of bilateral malignant ovarian diseases were discarded because it could not be proved beyond doubt that one or more might not be metastatic in origin. (In this connection, we admit freely, an adherence to a rigid standard of exclusion, with no desire to take advantage of lenient criteria; and secondly that all of our material was drawn from clinical cases and none from autopsy findings.) Of single organs the skin, as was to be expected, showed the greatest involvement being present five times alone and four times in combinations. Strangely enough carcinoma of the cervix uteri, a relatively common tumor, appears only once and that in combination with synchronous growth of the fundus uteri and breast, each presenting a different histologic picture.

So variable were the combinations of the lesions that it was deemed not worthwhile to attempt to construct tables of system involvement. Incidentally, the occurrence of benign lesions in this group approximated in percentage (16.6%) that of the total of cases reviewed. In nine instances in which the status of the marital partner was given there was no evidence of malignant disorder.

TABLE II—MULTIPLE SYNCHRONOUS

| Case | Age | Sex | Diagnosis | Interval | Diagnosis |
|---|---|---|---|---|---|
| 1 | 45 | F | Basal Cell Carcinoma of Nose | None | Basal Cell Carcinoma of Face—Non-contiguous |
| 2 | 68 | F | Adenocarcinoma of Uterus | None | Adenocarcinoma of Stomach |
| 3* | 76 | F | Squamous Carcinoma of Back | None | Squamous Carcinoma of Abdomen |
| 4 | 60 | F | Scirrhous Carcinoma of Breast | None | (1) Adenocarcinoma of Uterine Fundus<br>(2) Squamous Carcinoma of Cervix Uteri |
| 5 | 72 | F | Scirrhous Carcinoma of Breast | None | Basal Cell Carcinoma of Scalp |
| 6 | 85 | M | Squamous Carcinoma of Right Wrist | None | Malignant Melonoma of Left Thigh |
| 7** | 57 | M | Basal Cell Carcinoma of Back | None | Basal Cell Carcinoma of Back |
| 8** | 57 | M | Squamous Carcinoma of Back | None | Basal Cell Carcinoma of Back |

* The Carcinoma of Case No. 3 resulted from X-ray treatment administered 40 years previously.
** In cases numbered 7 and 8 the described lesions were quite widely separated.

TABLE III—METACHRONOUS LESIONS

| Case | Age | Sex | Diagnosis | Interval | Diagnosis |
|---|---|---|---|---|---|
| 9 | 43 | M | Squamous Carcinoma of Right Scapula | 4 years | Oat Cell—Carcinoma of Lung |
| 10 | 67 | F | Transitional Cell Carcinoma of Urinary Meatus | 3 years | Endometrial Sarcoma |
| 11 | 68 | F | Carcinoma Simplex of Left Breast | 22 months | Scirrhous Carcinoma of Chest Wall (No recurrence in incision) |
| 12 | 71 | M | Adenocarcinoma of Rectum | 8 months | Adenocarcinoma Cecum |
| 13 | 57 | F | Renal Cell Carcinoma of Kidney | 23 months | Adenocarcinoma—Linitis Plastica Type of Stomach |
| 14 | 68 | F | Basal Carcinoma of Face | 11 months | (1) Squamous Cell Carcinoma of Face<br>(2) Adenocarcinoma Ascending Colon |
| 15 | 49 | M | Squamous Carcinoma of Lower Lip | 20 years | Papillary Carcinoma of Bladder |
| 16 | 75 | F | Alveolar Carcinoma of Breast | 11 years | Transitional Cell Carcinoma of Bladder |
| 17 | 66 | F | Adenocarcinoma of Rectum | 4 months | Bilateral Malignant Cystadenoma Pseudo Mucinous Type |
| 18 | 64 | F | Carcinoma of Colon | 5 years | Malignant Melonoma of Face |

Table IV—Distribution and Number of Lesions By Organs

| Organ | No. of Cases |
|---|---|
| Skin | 9 |
| Breast | 4 |
| Uterus | 3 |
| Cervix | 1 |
| Stomach | 2 |
| Rectum | 2 |
| Ascending Colon | 2 |
| Caecum | 1 |
| Lung | 1 |
| Kidney | 1 |
| Ovary (Bilateral) | 1 |
| Urinary Meatus | 1 |

In the review of the material presented above, it is evident that no conclusions regarding pattern behavior can be drawn. With reference to general data i. e. family history, age incidence and duration between lesions, these cases did not differ materially from wider averages. Many patients, because of the recentness of their primary growth (1946-47-48-49) have not reached the age span in which a second primary lesion might be diagnosed. The exclusion of autopsy material in the group studied has further reduced the number of those who might be logically included. And lastly, the present tendency for the physician to regard downward progress of the patient as evidence of recurrence or metastasis, prevents the early diagnosis of many cases which are actually second or third primary growths.

A group of eighteen cases rigidly selected from the records of Mercy Hospital for the years 1943 to 1949, inclusive, is reviewed.

No autopsy material has been included in this study.

Approximately 43.7% of the originally selected cases were discarded because of lack of certainty of their status as true multiple primary growth.

No pattern trend in single or paired organs was noted.

The age incidence of the first primary tumor was a little higher than the general average, but the duration between lesions was essentially the same.

The family history was positive in 20.5%.

The sex distribution was not remarkable.

## Conclusion

Of what value then is a study of statistics which show no pattern trend in single or paired organs, no occupational, hormonal, external chemical or physical influence beyond an occasional reference to preceding trauma?

We answer that a study of many compilations of this type may show a unity of pattern amid a diversity of seemingly unrelated lesions, which, taken in conjunction with other patterns in single and paired organs might point the way in union with the clinical and research laboratory to the final solution of this vexing problem. Urology has its bladder registry. Cerebral palsy has its brain registry. Why not a registry devoted exclusively to the study of well authenticated and documented instances of multiple primary malignant neoplasms?

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In the entire United States about 270,000 mental patients are coming back into the community each year. The spread of the disease from those who may have contracted tuberculosis while in mental hospitals therefore becomes a community problem which we cannot afford to ignore. — Robert J. Anderson, M. D., *Pub. Health Rep.*, Jan. 7, 1949.

A roentgenographically normal chest in a person over 40 does not eliminate the possibility of pulmonary tuberculosis developing in the future. Incipient pulmonary tuberculosis in persons over 40 may be much more common than is generally supposed.—Aaron D. Chaves, M. D., *Am. Rev. Tuberc.*, May, 1949.

# MANAGEMENT OF PLACENTA PRAEVIA

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While maternity mortality and morbidity decline by attack on the important triad of toxemia, infection, and hemorrhage, there still remains room for improvement.

Prenatal care has made toxemias almost rare, aseptic techniques and antibiotics have sharply reduced infections. The availability and use of blood and plasma, particularly from banks have also reduced mortality and morbidity. The prevention of hemorrhage would, however, be a more desirable objective.

Last tremester hemorrhage is always potentially dangerous and may be due to various causes, among which are granulating erosions of the cervix, carcinomata, ruptured varices, premature separation of the placenta and placenta praevia.

In a recent survey, the committee of Maternal Health of New York County found that 50 per cent of all deaths in the viable period of pregnancy was due to hemorrhage; that 77-80 per cent of these deaths were preventable and the responsibility for the deaths was divided equally between the patient and the physician. In a recent address, a representative of a similar committee in Massachusetts reported to the New England Obstetrical and Gynecological Society that there had been 50 maternal deaths in Massachusetts in 1948. About 40 per cent were due to hemorrhage and almost all of these should have been preventable. Prevention depends on an early recognition and adequate treatment. The management of placenta praevia depends on a number of facts, no single one of which absolutely determines the course to follow.

Each patient complaining of last tremester spotting or hemorrhage should be hospitalized. Blood should be typed and crossmatched, Rh factor determined. An ample supply of compatible blood must be kept on hand.

We believe that X-ray examination with a contrast medium should be done. Our preference for this method of examination is based on safety and greater accuracy than soft tissue or air techniques.

If X-ray examination is unsatisfactory or needs collaboration, further examination must be carried out. Opinion on methods varies from simple sterile speculum examination to complete examination with everything in readiness for operative interference. For those not in a precarious condition, a simple sterile vaginal examination should be safe.

The foregoing procedures will determine with accuracy the type of placental implantation and this knowledge is the most important factor in planning management. Other factors influencing management are the blood status and history of previous labors, as well as the status of the patient as for progress of this labor. If active labor has been established, the patient is likely to deliver in sufficient time to avoid danger to herself and the foetus.

If placental implantation is central, Caesarean Section is the procedure as it is in most lateral praevias. Some operators prefer the classical type of section because it avoids the placenta while others prefer the low cervical type of section because they feel it is more physiological and permits more attention to the placental site which is notorious for its tendency to bleed. If operation of either type is decided upon it should be done as soon as is compatible with practicality and foetal viability. In neglected or acute cases, bleeding freely, immediate operation should be done. Transfusions through one or more veins before, during, and after operation is required. Blood should be used freely and continuously until patient is obviously out of danger.

The management of those in whom delivery from below appears feasible, makes many demands on experience, courage, and judgment. It is definitely recognized that all cases do not require operative intervention. Possibly all cases of low implantation and many marginal and some lateral praevias will deliver from below without danger or difficulty.

Manual dilatation and use of packs should be avoided. Other methods which may be employed alone or in combination are spontaneous labor with or without rupture of membranes, scalp traction, insertion of hydrostatic bag and version with tamponade of the bleeding placental edge by the baby's buttocks.

Labor with or without rupture of membranes will take care of more than half of all praevias and yields the best results in foetal survival. Possibly these cases are of minor degree. If bleeding persists, Willet forceps or ordinary Allis forceps may be applied to the scalp of the baby with a weight of one-half to one pound. The damage to the scalp is minimal when compared with excellent results for the mother and less than 20 per cent foetal mortality.

Operation is indicated when hemorrhage cannot be controlled by the above methods, but there are some who resort to bags and Braxton-Hicks version with less satisfactory results, particularly in foetal mortality.

For patients suspected of placenta praevia, the following, modified from Post Graduate Obstetrics by Mengert is a logical procedure:

1. Remove to hospital at once. The first bleeding is usually minor.
2. Determine status of blood and transfuse as indicated.
3. X-ray. If unsatisfactory:
4. Do gentle sterile vaginal examination. If the os is completely covered by placenta, refrain from further examination and prepare for abdominal delivery. If the os is partially covered, rupture the membranes.
5. If bleeding persists after rupture of the membranes, apply scalp traction and deliver by forceps when cervix is completely dilated and head is below mid-pelvis.

### Conclusion

1. Every patient with last tremester bleeding should be hospitalized and the cause of bleeding determined.
2. Contrast cystograms and vaginal examination will aid in determining the presence and type of placenta praevia.
3. Blood should be available and used generously.
4. Early and adequate attention to these details should improve maternal and foetal prognosis.

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*Endometriosis—Continued from page 55*

Conservative surgery, however, should be done with a guarded prognosis as to the necessity for further intervention. Gènerally speaking, the mortality from pelvic surgery is relatively low, and therefore, there may be a tendency to take this type of work rather lightly. We are inclined, perhaps, to take our pelvic surgery a little too casually. It is possibly a consequence of our earlier experience with gonorrheal salpingitis, where, in most instances, one was able by blunt finger dissection to strike a line of cleavage between the bowel on one hand and the uterus and adnexa on the other. In endometriosis that is not true; the adhesions between adjacent viscera calls for lysis by sharp dissection under ideal conditions of abdominal relaxation, good exposure, and good light. If manifestations of ileus or intestinal obstruction of the large or small bowel are present, they should be dealt with adequately by tube decompression or defunctioning of loops of extensively involved bowel. The recognition of an extensive process in which the relations are lost, where the bladder, ureters, or intestines are bound to be invaded, calls for utmost judgment as to when to go ahead in an attempt to clear up the disease process, or when to do some more palliative procedure, such as the removal of the endometrial lining of the larger cyst, as was done in one case. Every effort should be made to avoid trauma to the blood supply of the small intestine, bearing in mind that it is necessary only to arrest ovarian function to produce a regression of the pathological process. The decision as to whether to be conservative or radical must depend upon many factors, prominent among which are, the age and condition of the patient, the extent of the disease, the conditions under which one is working, and finally on the experience and background of the operating surgeon. The preservation of the anterior peritoneal surface of the broad ligaments and the wide bladder flap of peritoneum will facilitate the covering of raw surfaces of the pelvis. Acute appendicitis in women in this age group should, we believe, unless the symptoms are irrevocable, or unless there is a localized abscess present, be approached through a mid-line incision. The temporary use of testosterone in suitable dosage in the preoperative and postoperative management of these cases as a diagnostic and therapedic agent, is strongly urged.

We are dealing with a serious problem which is usually insidious in its onset. It is probably taking the place of gonorrheal salpingitis as the number 1 cause of disfunction and pain in the young adult female. Fifty-three cases are reported out of 197 major pelvic operations, exclusive of pelvic repair. Suggestions for its recognition and treatment are submitted.

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# MODERN CONCEPTS OF POLIO AND ITS TREATMENT

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This subject is particularly apropos at this time. In 1949, the State of Maine experienced one of the worst epidemics in its history. This epidemic had been accurately predicted from charts of the National Foundation for Infantile Paralysis. At a meeting of the State Polio Planning Committee held at the Maine General Hospital in Portland, during May, 1949, plans were made to prepare ourselves for such an eventuality. Unfortunately, the accuracy of the prediction was all too true.

Anterior poliomyelitis is caused by a virus infection which has a particular affinity for the anterior horn cells of the spinal cord and for other areas of the central nervous system. The large amount of experimental work that has been done bears this out. The virus attacks the anterior horn cells of the spinal cord. Clinical and experimental work has shown that the lesions are not confined to the lower motor neuron alone, but that many parts of the nervous system may be affected. There may be total destruction of the anterior horn cells resulting in complete paralysis which is irreversible or the cells may be less severely damaged, a condition which is reversible. The inflammation may involve the posterior root ganglia, the cortex of the brain, and the meninges. Involvement of the cortex, when present, seems to be limited to the motor area of the precentral gyrus. This has been found in the paralytic and nonparalytic cases of polio. With this understanding of the pathology of the disease, it is much easier to understand the signs and symptoms.

No discussion of anterior poliomyelitis would be complete without mentioning the fundamental concepts and principles of Sister Kenny's theory and treatment. Due to wide publicity in newspapers, magazines and over the radio over the past nine years, you are probably familiar with Sister Kenny's concepts. However, they may be enumerated for purpose of discussion. Her three cardinal signs or symptoms of this disease are muscle spasm, mental alienation and incoördination. Let us first consider muscle spasm. According to Miss Kenny, muscle spasm, rather than paralysis is the primary symptom of polio. The affected muscles are painful, hyperirritable and in spasm. Untreated, spasm, by destroying muscle tissue, causes atrophy. If allowed to continue the final result is frequently a fibrous, inextensible nonelastic mass of tissue. In contradistinction to the above theory of spasm and its cause, we believe that spasm, as detected in polio, is due, first, to meningeal irritation because at the onset of this disease the principle location of spasm is almost the same as the stiffness found in any type of meningitis, viz., in the neck, back, hamstrings and calf muscles. This meningeal component is more marked at the onset of the disease and disappears rather quickly. Another cause of the spasm, is inflammation of the posterior root ganglia. When the sensibility of the posterior root is increased by an inflammatory process or when the dorsal root ganglia are irritated, the threshold of the reflex may be lowered and the response is stronger. These impulses passing through affected ganglia and inflamed roots will produce referred pain in the muscle. Pain due to stretching of the musculature can be explained as being due to a mechanism of summation of impulses because the stronger the stretch, the greater the pain elicited. The most persistent type of spasm is that due to the increase of the normal clonus in strong muscles. The increase of the stretch reflex in protagonist muscles unopposed by completely paralyzed antagonists, in the experimental animal, has been described by Sherrington. It is thought to be due to the lack of normal inhibition of protagonist muscles (Reciprocal Inhibition of Sherrington). Spasm may be due to any one of these phenomena.

The second Kenny concept is mental alienation.

Electrical stimulation proves that in paralytic and paretic muscles there is always some degree of neuromuscular degeneration. Those which are only partially denervated have a good chance of recovery and obviously those which are totally denervated will never recover. According to the Kenny teaching, the nonparalyzed muscles, i.e., those opposed to the muscles in spasm become mentally "alienated" (divorced from the patient's mind). Alienated muscles are toneless and incapable of voluntary contraction, are never painful or tender, indicating that they are not the muscles involved in the disease. The dissociation of the muscles from the brain is thought to be due to some physiological block. Therefore, according to Miss Kenny, the strong muscles in spasm are the affected ones and the weak paralyzed muscles are normal but "mentally alienated." How or what causes the alienation has not been proven.

The third symptom described by Miss Kenny is "incoördination" due to a "disorganization of the regulating centers." In polio, the voluntary and autonomic control of movement is impaired only because nerve impulses are directed to normal as well as to completely and incompletely denervated muscles. This is seen in any case of injury to the lower motor neurons. It is true for lesions of the anterior horn

cells and for injuries of peripheral nerves. If, among muscles that have to carry out motions, some are paralyzed, the patient will attempt to substitute a strong muscle for a paralyzed one. This leads to an abnormal and unusual use of the extremity. In the usual case of polio there is neither change in deeper sensibility nor are lesions seen in the cerebellum which might lead to what is called incoördination. This abnormal use of an extremity is substitution and not incoördination. It is obvious from the foregoing remark that the medical profession's interpretation of the pathology of polio and that of Sister Kenny, differ widely. To date, no evidence has been produced to show primary pathological involvement of the muscles per se. It is difficult for me to reconcile spinal fluid abnormalities, increased cell counts and elevated protein, with primary muscle involvement. Despite Sister Kenny's theory of spastic paralysis, polio still remains a lower motor neuron disease.

In discussing the treatment of anterior poliomyelitis certain fundamental facts should be stressed. The patients are not cured; they recover and we, as physicians, assist in the recovery. In most epidemics of anterior poliomyelitis, fifteen to twenty-five per cent will have extensive paralysis with death resulting in about eight per cent. Another twenty-five to thirty-five per cent will have moderate involvement which will not prevent useful activities on the part of the patient. The remaining forty to sixty per cent will have no after effects and may lead completely normal lives. The management of these cases is divided arbitrarily into three groups; the acute, the convalescent and the chronic. The acute stage lasts until all muscle tenderness has disappeared. The convalescent phase extends from that period approximately eighteen months during which muscle recovery is possible. The chronic stage begins at this time and extends indefinitely. I believe that, in the acute stage, rest is important. The same principle may be applied to any other acute infection. Heat, either moist or dry, is beneficial in allaying tenderness and improving circulation. During the period of hyperesthesia all limbs should be kept in proper position to insure physiological rest and prevent stubborn contractures which occur during this period of muscle spasm. Whether this is accomplished by foot boards, shells, sandbags, splints or other protective apparatus, I believe, makes little difference. We should not get lost in minutiae and lose sight of the fundamental principles in treatment. As early as possible, a muscle examination should be performed and charted. Muscle tenderness and hyperesthesia should be noted and recorded. A trained physiotherapist is of utmost importance. It may not be possible to complete this examination at one setting due to the tenderness and hyperesthesia of the musculature. The usual standardized muscle grading system is used. According to present day concepts the patient should not be kept immobilized in bed for long periods of time and weight bearing should be allowed as early as possible. However, recumbency should be prolonged in those cases which reveal spinal asymmetry. After the acute stage has passed, we enter the second or convalescent period. During this stage it is important to maintain muscle tone by massage and systematic active and passive movement. The danger of contractures as a result of prolonged splinting, even in positions of physiological rest, is ever present. These must be guarded against and at this time passive movements are of extreme value. Muscles which return to a good rating cannot function adequately if persistent or severe contractures of joints have been allowed to develop. There is slight danger of permanently damaging a muscle by taking it through its full range of motion. Early mobilization favors neuro-muscular regeneration. The weakened muscles must be guarded against fatigue. The trained physiotherapist plays an important part in muscle re-education which, in this stage, is a very important part of therapy. The paretic muscle must be taught to resume its proper function, first by passive motion, which brings out the proprioceptor stimuli and second, by active motions which reestablish and fix the motor pattern in the brain. Obviously only a weakened and not a completely paralyzed muscle can be expected to respond to such reeducation.

Braces should be used, when indicated, to protect joints and avoid deformity. All muscles, even with widespread and complete paralysis of an entire extremity, should have careful protection and treatment comparable to that given in peripheral nerve injury for a period of three months. At the end of that three-month period an accurate prediction of recovery can be given and the muscles differentiated into three categories: 1. Those which fall below thirty per cent of power in which no return of useful power is to be anticipated. These make up the permanently paralyzed extremities. 2. Those which have regained eighty per cent or more and can be expected to function satisfactorily without any further therapy except for general supervision. 3. The group which demonstrates some return of power ranging from thirty to seventy-five per cent. These have possibilities for further recovery to a point where useful function results. This last group is extremely important from the point of view of further active treatment and every effort should be made to build up power and develop hypertrophy of the remaining active muscle tissue. These patients must be protected from over fatigue and postural strain during the next year. No appreciable recovery occurs after eighteen months. Those patients in Group 1 with completely flail extremities are either condemned to braces, or later

*Continued on page 75*

# OPTIC NEURITIS AIDED BY SINUS SURGERY

## A Case Report

JOHN J. LAPPIN, M. D., Portland, Maine

Infection of the accessory nasal sinuses is one of the common causes of retrobulbar neuritis. On the other hand, only a small percentage of patients with an infection of the sinuses have a retrobulbar neuritis as a complication. A possible explanation of this fact is suggested by the anatomic and embryologic studies of Onodi, Schaffer, and Warren B. Davis.

The posterior group of sinuses are developed by an absorption of bone, and a great variation exists in the size of the sinus cavities, in the thickness of the bony wall that separates the sinus from the nerve, and the relation of the posterior ethmoidal and sphenoidal sinuses to the optic nerve.

Anatomical variations may also explain unilateral visual disturbances when the infection of the sinuses is limited to the posterior group on the opposite side, or involvement of both optic nerves from an infarction of the posterior ethmoidal or sphenoidal sinus on one side.

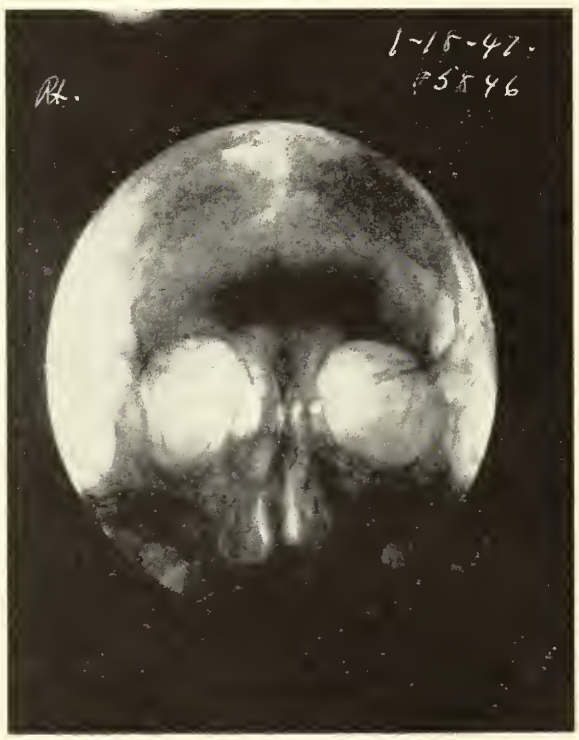
Concerning the diagnosis of infection of the sinuses in these cases in which the eyes showed complications, it should be emphasized that other conditions of more distant focus of infection, such as those of the throat, genito-urinary tract, apical infection of teeth, can render the optic nerve susceptible to circulating toxins.

Unless there is evident infection of the sinuses, or, the loss of vision is progressing rapidly, it is never justifiable to operate on the sinuses until the patient has been subjected to a thorough diagnostic study.

The following case report is an example of a retrobulbar neuritis which was treated by the author that apparently developed as a result of infection in the accessory nasal sinuses. Oliver and Crowe reported ten such cases.

Patient: white, female, age 44 years.

She first consulted her eye doctor January 11, 1947, complaining of blurred vision. At that time she presented V.O.D. 20/70, V.O.S. 20/70. The right fundus showed old and recent exudation into retina, with some edema of optic nerve and surrounding retina, also some arteriolar spasm. The left fundus presented so much edema of entire retina that the optic nerve was not visible. Blood vessels were likewise engorged.






Past Health History: All childhood diseases, T & A operation at age of seventeen, a minor nasal operation of undeterminable nature at age of twenty-one, and at forty years, a gall bladder series. The patient stated that she had been subject to frequent head colds for the past five years.

January 20, 1947: The patient was referred to my office for rhinological examination to determine possible focal infection. Nasal examination revealed a rather pale, congestive nasal mucous membrane throughout. The nasal septum was markedly deviated to left at the lower anterior quadrant and to the right at upper posterior third. Both lower turbinates presented a mild boggy appearance, but the right and left middle turbinates were markedly hypertrophied and undergoing polypoid degeneration. Both middle meati exhibited moderate amount of free mucopurulent discharge. The oral pharynx was essentially negative.

The urine was color straw, reaction acid, spec. gravity 1015, album. negative, sugar negative. Microscopic: rare leucocyte and few fat droplets. Blood count: Red blood cells 3,650,000, white blood cells 6,200, hemoglobin 68, color index 0.9, P. 63, L. 35, M. 1, E. 1. Sedimentation rate 24 m. m. per hour. Radiographic examination of the para-nasal sinuses showed evidence of a chronic bilateral frontal sinusitis with an osteolitis or chronic osteomyelitis involving the surrounding portions of the bone giving an indistinct outline to these sinuses. There was evidence of a chronic ethmoiditis as indicated by a lack of cellular detail. There was also evidence of chronic bilateral antral sinusitis, more marked on the left side. There was no evidence of any fluid levels in the erect position. Films of teeth, bony thorax, and lung fields were negative. A radical type of surgical procedure was obviously indicated under the circumstances and was carried out immediately.

*Surgical Procedure:* Under general anaesthesia a right modified radical frontal operation was performed by the Killian Technic. This is indicated when there is considerable involvement of the anterior wall of the frontal sinus as illustrated by the above X-ray findings. The technic is similar to that of the Lynch operation, but includes the removal of the anterior wall, as well as the floor of the frontal sinus, leaving the supra-orbital ridge. In this case the floor was left intact for subsequent surgery. Sulfanilimide powder was instilled into the sinus cavity, the periosteum replaced, and the skin closed. The anterior half of the right middle turbinate was removed to relieve the obstruction between the frontal sinus and the nasal cavity. The deformed obstructing nasal septum was corrected without subsequent nasal packing, i.e. septal window on left flap and bleeding controlled. Post-operative chemo therapy was administered and convalescence uncomplicated. Ten days later, the patient underwent a Lynch operation, in which the incision was made along the lower margin of the eyebrow and over the lateral wall of the nose. The periosteum was elevated from the floor of the frontal sinus and from the medial wall of the orbit. The lacrimal sac was elevated, the inner canthal ligaments and attachments of the superior oblique pulley loosened, and the orbital periosteum elevated. The entire bony floor of the frontal sinus was removed and exenteration of the ethmoid cells carried out. A large rubber tube drain maintained the opening from the frontal sinus to the nasal cavity. The post-operative course was uneventful, and this patient was discharged after the latter procedure.

On May 22, 1947, the patient returned to her oculist for post-operative examination and it was found that her visual acuity was improved to V.O.D. 20/35, V.O.S. 20/35. No edema remained in either fundus, and all landmarks were clear, though many areas of scarring were visible in the retinae.

Ref., Archives of Otolar., Vol. 6, Oliver and Crowe.

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A person with tuberculosis has many needs and before we can meet them we must understand them fully. Medical treatment is, of course, the obvious essential. But also to be considered are many factors which have a bearing upon the way a patient responds to his particular therapy. What are these factors? What facilities do our communities have to deal with them? Most patients face a variety of psychological, financial, and personal adjustments which cannot be separated from one another. Emotional reactions to the disease itself influence the acceptance of the diagnosis and treatment. — Robert J. Anderson, M. D., *Pub. Health Rep.,* June 3, 1949.

BCG vaccine has joined the conventional forms of tuberculosis control in Alaska. With a tuberculosis mortality rate nine times that of the United States, the last outpost of America is mustering every known weapon in its fight against tuberculosis. — Elaine Schwinge, M. D., *Nat. Tubcrc. A. Bull.,* May, 1949.

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The prevention of irregular discharge begins at the beginning of treatment. And treatment begins at diagnosis, at the time when the patient is first informed that he has tuberculosis.—William B. Tollen, Ph. D., *VA Pamphlet,* 10-27, Oct., 1948.

# MEDICAL CONFERENCE

Edited by Francis J. Welch, M. D., President of the Medical Staff, Mercy Hospital

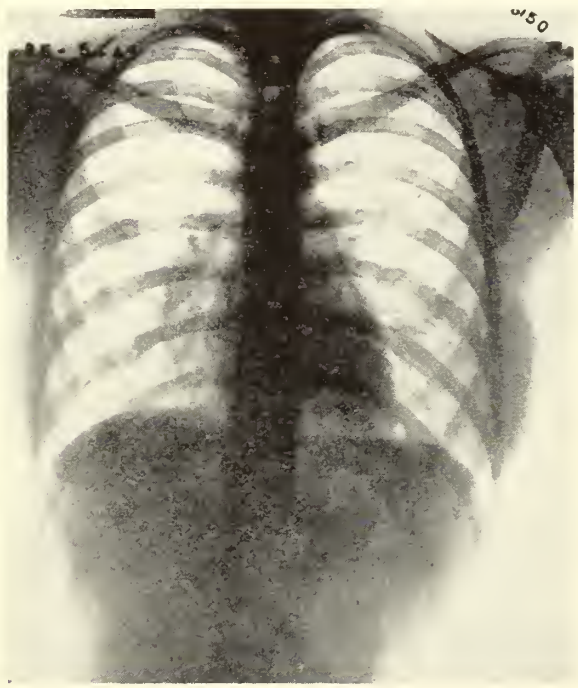
## Case presentation by Dr. Gisela Davidson, Portland, Maine

This case is presented because it shows a lung condition rare in this part of the country, but one which became more prevalent as the veterans returned from all over the states.

This 16-year-old high school girl was born in Maine but traveled a great deal throughout the United States because her father was in the regular army. In the winter of 1946, the family moved to Arizona. The following April, the patient developed measles and complained of right-sided chest pain at the same time.

In May of 1947, she had a hemoptysis of several ounces of bright red blood and was X-rayed. Through the courtesy of the Arizona Hospital, I am able to show you the following films. (Xray 1) The

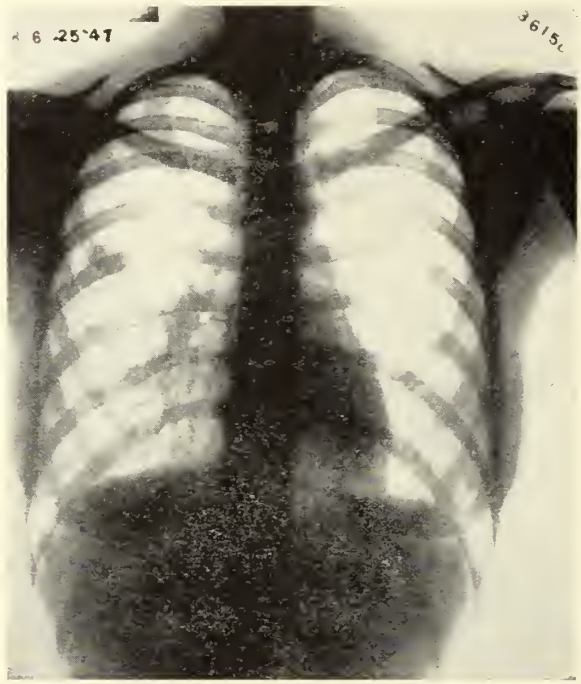
X-ray 1



first X-ray shows the right root to be enlarged, and there is an area of infiltration in the right mid-lung field. A diagnosis of possible tuberculosis, atypical pneumonia, or coccidioidomycosis was made. The skin test was negative for tuberculosis. Because coccidioidomycosis is endemic in this area, further studies were made. The skin test for coccidioidomycosis was positive, and the diagnosis was further substantiated by positive serological studies, performed by Dr. Charles Smith of Stanford University. Patient's white count was elevated. Her blood sedimentation rate was increased. She had cough and sputum.

She was placed on a bed rest regime at home. Follow-up films show a gradual clearing of the pathology in the right lung field, but a residual circular highlight can be outlined. Clinically the patient improved on bed rest; cough and sputum disappeared, temperature returned to normal within a few days. Blood sedimentation rate came down to normal.

X-ray 2



In July, 1947, this patient's father was taken sick and died in September of 1947, with no definite diagnosis made. An autopsy was performed and revealed a miliary type of generalized coccidioidomycosis. It is interesting that both forms of this disease occurred in the same family; whereas this patient shows a benign form of coccidioidomycosis, which gives a good prognosis and usually does not need any active treatment except bed rest, her father presented the picture

X-ray 3



of generalized coccidioidomycosis which can be as malignant as a generalized miliary tuberculosis.

After her father's death this patient returned to Maine, and was advised to have regular follow-up films. Her last X-ray, taken a few days ago, still shows a persistent small-sized cavity in the right lung field. On one occasion since her return to Maine, she raised approximately a mouthful of bright red blood. She has no other clinical symptoms and physical finding.

The infecting agent in coccidioidomycosis is the coccidioides immitis; two forms appear in its life cycle, 1) a vegetative form, and 2) the parasitic form. The first, the vegetative form is found in nature, and in culture. Fungus hyphae are produced which give rise to chlamydospores, these are transmitted by air and deposited in the soil in surrounding plant life, for instance, cactus. These are the only infectious forms of the parasite.

Human infection occurs by inhalation of spore bearing dust or traumatically by prick of cactus spines. The microscopic examination of infected tissue or sputum shows spherical organisms having a highly refractive double capsule. These endospores are the only reproductive elements encountered through the parasitic phase of the living cycle of coccidioides immitis. On culture a coarse mycelium is formed, and on the hyphae of this mycelial mass chlamydospores develop; that means, theoretically, an infection from man to man is not possible, but an infection in the laboratory from culture media is possible.

Most exposed individuals become infected and immune without recognizable symptoms. The acute benign pulmonary form of the disease is common among newcomers in endemic areas, with symptoms similar to those of influenza or minimal pulmonary tuberculosis. In some individuals erythema nodosum due to the fungus develops with or without preceding acute respiratory symptoms. Occasionally pulmonary lesions progress to temporary or persistent cavity formation. Pleural effusion sometimes develops. Rarely the coccidioidomycosis becomes progressive (coccidioidal granuloma) and disseminated, as in the case of this patient's father.

Since this presentation, the patient has had several follow-up films which showed a gradual disappearance of the cavity on the right. There is now only an area of increased density, approximately 1 cc. in diameter, in the second interspace on the right anteriorly. Patient has no clinical symptoms or physical signs referrable to her chest.

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*Modern Concepts of Polio and Its Treatment—Continued from page 71*

come to reconstructive surgery in an attempt to improve function or to render them brace free. Attempts to relieve muscle spasm by the use of Curare, Prostigmine and Myanesin has not proven successful. However, many clinicians feel that these drugs are of benefit in the treatment of spasm. Others feel that stretching to overcome contractures may be accomplished more successfully following administration of the above drugs.

There is no specific therapy for anterior poliomyelitis. The treatment of these patients does not fall to any one group in the profession. I am highly in favor of a distinct polio service as outlined by Dr. Carl W. Ruhlin in his recent paper in THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION.* We are indebted to Sister Kenny for making us more conscious of the benefits of early mobilization and physiotherapy and for stimulating the medical profession to a more critical evaluation of its treatment of anterior poliomyelitis.

* "Coördination-Coöperation vs. Polio," Dr. Carl W. Ruhlin, Bangor, Maine, THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION, Dec., 1949, Page 347, Vol. 40, No. 12.

# WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT CIVIL DEFENSE AND PUBLIC SAFETY PLANNING

By: The Committee on Emergency Civilian Defense of the Maine Medical Association,* and with the approval of the President, the Council, and the House of Delegates of the Maine Medical Association.

Physicians were the first to recognize and to call attention to the urgent need for civil defense and public safety planning on a nationwide basis. A considerable number of the World War II medical officers had had an opportunity to observe at first hand the civil defense organization in operation in England during the war-time bombing of London and other industrial centers throughout the United Kingdom; while other medical officers had been assigned to conduct post-war surveys of German and of Japanese civilian medical organizations. These doctors had an opportunity to observe what a heavily bombed country had needed in the way of a civil defense organization. Hence, they were in position to know what would be required in this atomic age in this country in the way of medical personnel and of medical supplies and equipment in order that our civilian population might be assured of an adequate civil defense and public safety organization capable of coping with any large peacetime disaster or World War III holocaust. It was generally agreed that two years would be required to work out all the intricate details of such a plan on a national scale and that it would take still another year or two to whip these medical facilities into shape. In other words, the experts have estimated that three to four years would be required before medical preparedness could be achieved.

At the Atlantic City meeting in June, 1947, the House of Delegates of the American Medical Association, mindful of the disturbed world political situation and aware of the possibilities of total warfare, authorized the Board of Trustees to appoint a standing committee to be designated as the "Council on National Emergency Medical Service," and on September 4, 1947, the Board of Trustees gave consideration to the composition of the Council and proceeded to make appointments and instruct the original membership. The personnel selected included the following: James C. Sargent, M. D., Milwaukee, Wisconsin; Winchell McK. Craig, M. D., Southwest Rochester, Minn.; Harold S. Diehl, M. D., Minneapolis, Minn.; Harold C. Lueth, M. D., Omaha, Nebraska; Perrin H. Long, M .D., Baltimore, Md.; Stafford Leak Warren, M. D., Baltimore, Md.; and Richard L. Meiling, M. D., Columbus, Ohio. Edward L. Bortz, M. D., President of the Association, and George F. Lull, M. D., Secretary and General Manager of the Association, were appointed ex-officio.

The Council on National Emergency Medical Service has been very active since it held its first meeting on December 11, 1947; and as a matter of fact at the December meeting in Washington, the House of Delegates of the American Medical Association authorized this Council to intensify its efforts with respect to the medical and health aspects of Civil Defense, after the Reference Committee on Emergency Medical Service, in its report, had recommended — "That the House urge the Council on National Emergency Medical Service to continue and to extend its instructive planning in this field" and that "The House urge on the Board of Trustees the national importance of this project and request they will give it all possible support."

President Stephen A. Cobb established a Committee on Emergency Civilian Medical Defense of the Maine Medical Association in May, 1948, and named to this Committee: Doctor Charles W. Steele (Chairman), Doctor Ralph Getchell and Doctor Harry Butler. This Committee was instructed to study the problems connected with emergency medical care for civilians in event of a disaster within the State and to recommend plans for supplying the necessary professional personnel that would be required to operate an emergency medical defense set-up within this state. The original three members were reappointed each June by Doctor Forrest Ames and by Doctor Ralph Goodwin when each one became President of the Maine Medical Association.

The members of this Committee have devoted much time and thought to the problems connected with providing the professional personnel that would be required for emergency medical units in the general hospitals now in operation within the state and for the first aid stations, clearing stations and emergency auxiliary hospital units that might be required in event of a serious disaster. The plan, as presented to President Ralph Goodwin and to the Council and to the House of Delegates of the Maine Medical Association at the Fall Clinical Session held November 6, 1949, at Waterville, will be outlined below in its essential detail; but first, it would seem in order to refer at this point to two very important events which have occurred within this state during 1949 and by their very nature are certain to have a profound influence upon Civil Defense and Public Safety Planning at state and local levels.

First, in April last year, the Maine State Legis-

* Charles W. Steele, M. D., F. A. C. P., Chairman; Ralph A. Getchell, M. D., Harry Butler, M. D.

lature passed and the Governor approved "The Maine Civil Defense and Public Safety Act of 1949."

Second, in November, 1949, the Governor of Maine nominated Colonel Spaulding Bisbee to be the first Director of Civil Defense and Public Safety for this state and the Governor's Council confirmed this appointment in December, 1949.

The Maine Civil Defense and Public Safety Act of 1949 is a most comprehensive document and bestows very great power upon the Governor and upon the Director of Civil Defense and Public Safety in event of a serious emergency or disaster within the confines of this state. Furthermore, very rigid rules have been laid down by law concerning the establishment of Civil Defense Organizations within the political subdivisions of this state and about the appointment of a local civil defense director and five deputy directors for each county or city within this state.

The members of the Committee on Emergency Civilian Defense of the Maine Medical Association is of the opinion that it is quite essential and important that every doctor of medicine within this state become familiar with the more important aspects of this Maine Civil Defense and Public Safety Act of 1949 and has, therefore, arranged that this new law be published in its entirety at this point for the careful perusal of each reader.

## CHAPTER 298

AN ACT Relating to the Establishment of a Civil Defense Agency and a Public Safety Council.

Be it enacted by the People of the State of Maine, as follows:

R. S., c. 11-A, additional. The revised statutes are hereby amended by adding thereto a new chapter to be numbered 11-A, to read as follows:

### CHAPTER 11-A.

STATE CIVIL DEFENSE AND PUBLIC SAFETY COUNCIL.

Sec. 1. Short title. This chapter may be cited as the "Maine Civil Defense and Public Safety Act of 1949."

Sec. 2. Policy and purposes. The purpose of the provisions of this chapter is to create a state civil defense and public safety agency, and to authorize the creation of local organizations for civil defense and public safety in the political subdivisions of the state; to confer upon the governor and upon the executive heads or governing bodies of the political subdivisions of the state the emergency powers provided herein; and to provide for the rendering of mutual aid among the political subdivisions of the state and with other states with respect to the carrying out of civil defense and public safety functions.

It is further declared to be the purpose of this chapter and the policy of the state that all civil defense and public safety functions be coördinated to the maximum extent with the comparable functions of the federal government including its various departments and agencies, of other states and localities, and of private agencies of every type, to the end that the most effective preparation and use may be made of the nation's manpower, resources and facilities for dealing with any disaster that may occur.

Sec. 3. Definitions. As used in this chapter:

"Civil defense and public safety" shall mean the preparation for and the carrying out of all emergency functions, other than functions for which military forces are primarily responsible to minimize and repair injury and damage resulting from disasters caused by enemy attacks, sabotage or other hostile action, or by fire, flood, earthquake or other natural causes. These functions include, without limitation, fire fighting services, police services, medical and health services, rescue, engineering, air raid warning services, communications, radiological, chemical and other special weapons defense, evacuation of persons from stricken areas, emergency welfare services (civilian war aid), emergency transportation, existing or properly assigned functions of plant protection and other functions related to civilian protection, together with all other activities necessary or incidental to the preparation for and carrying out of the foregoing functions.

"Local organization for civil defense and public safety" shall mean an organization created in accordance with the provisions of this chapter by state or local authority to perform local civil defense and public safety functions.

"Mobile reserve battalion" shall mean organization for civil defense and public safety created in accordance with the provisions of this chapter by state or local authority to be dispatched by the governor to supplement local organizations for civil defense and public safety in a stricken area.

"Political subdivision" shall mean any city, town or village corporation in the state.

Sec. 4. State civil defense and public safety agency. Whenever it is deemed advisable by the governor, there shall be created within the executive branch of the state government a department of civil defense and public safety, hereinafter in this chapter called the "civil defense and public safety agency" and a director of civil defense and public safety, hereinafter in this chapter called the "director" who shall be the head thereof. The director shall be appointed by the governor with the advice and consent of the council and he shall hold office during the pleasure of the governor and council. He shall receive such compensation as shall be fixed by the governor and council and shall hold no other state office.

The director may employ such technical, clerical, stenographic and other personnel, subject to the provisions of the personnel law, and make such expenditures on approval of the governor and council, as may be necessary to carry out the purposes of this chapter.

The director and other personnel of the civil defense and public safety agency shall be provided with appropriate office space, furniture, equipment, supplies, stationery and printing in the same manner as provided for personnel of other state agencies.

The director, subject to the direction and control of the governor, shall be the executive head of the civil defense and public safety agency and shall be responsible to the governor for carrying out the program for civil defense and public safety. He shall coördinate the activities of all organizations for civil defense and public safety within the state, and shall maintain liaison with and coöperate with civil defense and public safety agencies and organizations of other states and of the federal government, and shall have such additional authority, duties and responsibilities as may be prescribed by the governor.

Sec. 5. Public safety council. There is hereby created a public safety council, which shall be composed of the following members: the insurance commissioner, who shall serve as chairman; the chief of the state police; the commissioner of health and welfare; the adjutant-general; the forest commissioner; the commissioner of inland fisheries and game; the chairman of the state highway commission; a member of the Fire Chiefs' Association appointed by said association; a member of the Maine Sheriffs' Association appointed by said association; a field representative of the American National Red Cross to be appointed by the governor and such other persons as the governor and council deem desirable. They shall serve during the pleasure of the governor and executive council. The council shall advise the governor and the director on all matters pertaining to civil defense and public safety. The governor shall be a member ex-officio. The members thereof shall serve without compensation, but, other than

state officers, may be reimbursed for their reasonable and necessary expenses incurred in the performance of their duties.

Powers and duties granted under the provisions of this chapter to the department of civil defense and public safety are hereby conferred upon the public safety council until such time as the department of civil defense and public safety is created.

Sec. 6. Emergency; proclamation; publication; powers of the governor; annulment. Whenever a conflagration or other disaster exists or appears imminent in any part of the state, the governor shall by proclamation declare the fact and that an emergency exists in any or all sections of the state. Such proclamation shall be published in such newspapers of the state and posted in such places as the governor deems necessary and a copy of such proclamation shall be filed with the secretary of state. The governor shall have general direction and control of the civil defense and public safety agency, and shall be responsible for the carrying out of the provisions of this chapter, and in the event of disaster beyond local control, may assume direct operational control over all or any part of the civil defense and public safety functions within the state.

In performing his duties under the provisions of this chapter, the governor is authorized and directed to coöperate with all departments and agencies of the federal government, with the offices and agencies of other states and with private agencies in all matters pertaining to the civil defense and public safety of the state and of the nation.

In performing his duties under the provisions of this chapter, the governor is further authorized and empowered:

I. To make, amend and rescind the necessary orders, rules and regulations to carry out the provisions of this chapter within the limits of the authority conferred upon him herein, and not inconsistent with the rules, regulations and directives of the president of the United States or of any federal department or agency having specifically authorized civil defense and public safety functions.

II. To prepare a comprehensive plan and program for the civil defense and public safety of this state, such plan and program to be integrated into and coördinated with the civil defense and public safety plans of federal agencies and with the plans of other states to the fullest possible extent, and to coördinate the preparation of plans and programs for civil defense and public safety by the political subdivisions of this state, such plans to be integrated into and coördinated with the civil defense and public safety plan and program of this state to the fullest possible extent.

III. In accordance with such plan and program for the civil defense and public safety of this state, and consistent with the civil defense and public safety plans, programs and directives of the federal government, to procure supplies and equipment, to institute training programs and public information programs, and to take all other preparatory steps including the partial or full mobilization of civil defense and public safety organizations in advance of actual disaster, to insure the furnishing of adequately trained and equipped forces of civil defense and public safety personnel in time of need.

IV. To conduct such studies and surveys and to take such inventories of the industries, resources and facilities of this state as may be necessary to ascertain the capabilities of the state for civil defense and public safety, and to plan for the most efficient emergency use thereof.

V. On behalf of this state, to enter into mutual aid arrangements with other states and to coördinate mutual aid plans between political subdivisions of this state.

VI. To delegate any authority vested in him under the provisions of this chapter, and to provide for the sub-delegation of any such authority.

Whenever the governor is satisfied that an emergency no longer exists, he shall annul the proclamation by another proclamation affecting the sections of the state covered by the original proclamation, or any part thereof, which said proclamation shall be published and posted in the same manner as provided for the issuance of the original proclamation.

Sec. 7. Mobile reserve battalions. The governor is authorized to create and establish such number of mobile reserve battalions as may be necessary to reinforce civil defense and public safety organizations in stricken areas and in accordance with the plans of the federal government. He shall appoint a commander for each such battalion who shall have primary responsibility for the organization, administration and operation of such battalion. Mobile reserve battalions shall be called to duty upon orders of the governor and shall perform their functions in any part of the state, or, upon the conditions specified in this section, in other states.

Personnel of mobile reserve battalions while on duty, whether within or without the state, shall:

I. If they are employees of the state, have the powers, duties, rights, privileges and immunities and receive the compensation incidental to their employment;

II. If they are employees of a political subdivision of the state, and whether serving within or without such political subdivision, have the powers, duties, rights, privileges and immunities and receive the compensation incidental to their employment; and

III. If they are not employees of the state or a political subdivision thereof, be entitled to compensation by the state at $6 per day and to the same rights and immunities as are provided by law for the employees of this state. All personnel of mobile reserve battalions shall, while on duty, be subject to the operational control of the authority in charge of civil defense and public safety activities in the area in which they are serving.

The state shall reimburse a political subdivision for the compensation paid and actual travelling and maintenance expenses of employees of such political subdivision while serving as members of a mobile reserve battalion, and for all payments for death, disability or injury of such employees incurred in the course of such duty, and for all losses of or damage to supplies and equipment of such political subdivision resulting from the operation of such mobile reserve battalion.

Whenever a mobile reserve battalion of another state shall render aid in this state pursuant to the orders of the governor of its home state and upon the request of the governor of this state, this state shall reimburse such other state for the compensation paid and actual travelling and maintenance expenses of the personnel of such mobile reserve battalion while rendering such aid, and for all payments for death, disability or injury of such personnel incurred in the course of rendering such aid, and for all losses of or damage to supplies and equipment of such other state or a political subdivision thereof resulting from the rendering of such aid; provided that the laws of such other state contain provisions substantially similar to this section.

No personnel of mobile reserve battalions of this state shall be ordered by the governor to operate in any other state unless the laws of such other state contain provisions substantially similar to those of this section.

Sec. 8. Local organization for civil defense and public safety. Each political subdivision of this state is hereby authorized and directed to establish a local organization for civil defense and public safety in accordance with the state civil defense and public safety plan and program. Each local organization for civil defense and public safety shall have a director who shall be appointed by the executive officer or governing body of the political subdivision, and who shall have direct responsibility for the organization, administration and operation of such local organization for civil defense and public safety, subject to the direction and control of such executive officer or governing body. Each local organization for civil defense and public safety shall perform civil defense and public safety functions within the territorial limits of the political subdivision within which it is organized, and, in addition, shall conduct such functions outside of such territorial limits as may be required pursuant to the provisions of section 9.

Sec. 9. Mutual aid arrangements. The director of each local organization for civil defense and public safety shall, in collaboration with other public and private agencies within this state, develop or cause to be developed mutual aid arrangements for reciprocal civil defense and public safety aid and assistance in case of disaster too great to be dealt with unassisted. Such arrangements shall be consistent with the state civil defense and public safety plan and program, and in time of emergency it shall be the duty of each local organization for civil defense and public safety to render assistance in

accordance with the provisions of such mutual aid arrangements.

The director of each local organization for civil defense or public safety, when geographical locations make mutual aid arrangements desirable, may, subject to the approval of the governor, enter into mutual aid arrangements with civil defense and public safety agencies or organizations in other states for reciprocal civil defense and public safety aid and assistance in case of disaster too great to be dealt with unassisted.

Sec. 10. Immunity. Neither the state nor any political subdivision thereof, nor other agencies, nor, except in cases of willful misconduct, the agents, employees or representatives of any of them, engaged in any civil defense activities, while complying with or attempting to comply with the provisions of this chapter or any other rule or regulation promulgated pursuant to the provisions of this chapter, shall be liable for the death of or any injury to persons, or damage to property, as a result of such activity. The provisions of this section shall not affect the right of any person to receive benefits to which he or she would otherwise be entitled under the provisions of this chapter, or under the workmen's compensation law, or under any pension law, nor the right of any such person to receive any benefits or compensation under any act of congress.

Sec. 11. Appropriations and authority to accept services, gifts, grants and loans. Each political subdivision shall have the power to make appropriations in the manner provided by law for making appropriations for the ordinary expenses of such political subdivision for the payment of expenses of its local organization for civil defense and public safety. In making such appropriations, such political subdivision shall specify the amounts and purposes for which the moneys so provided may be used by the local organizations for civil defense and public safety.

Whenever the federal government or any agency or officer thereof or any person, firm or corporation shall offer to the state or to any political subdivision thereof, services, equipment, supplies, materials or funds by way of gift, grant or loan, for purposes of civil defense and public safety, the state, acting through the governor, or such political subdivision, acting through its executive officer or governing body, may accept such offer and upon such acceptance the governor of the state or executive officer or governing body of such political subdivision may authorize any officer of the state or of the political subdivision, as the case may be, to receive such services, equipment, supplies, materials or funds on behalf of the state or such political subdivision, and subject to the terms of the offer and the rules and regulations, if any, of the agency making the offer.

Sec. 12. Utilization of existing services and facilities. In carrying out the provisions of this chapter, the governor and the executive officers or governing bodies of the political subdivisions of the state are directed to utilize the services and facilities of existing departments, offices and agencies of the state and of the political subdivisions thereof to the maximum extent practicable, and the officers and personnel of all such departments, offices and agencies are directed to coöperate with and extend such services and facilities to the governor and to the civil defense and public safety organizations of the state upon request.

Sec. 13. Political activity prohibited. No organization for civil defense and public safety established under the authority of this chapter shall participate in any form of political activity, nor shall it be employed directly or indirecly for political purposes.

Sec. 14. Civil defense and public safety personnel. No person shall be employed or associated in any capacity in any civil defense and public safety organization established under the provisions of this chapter who advocates or has advocated a change in the constitutional form of the government of the United States or in this state or the overthrow of any government in the United States by force or violence, or who has been convicted of or is under indictment or information charging any subversive act against the United States. Each person who is appointed to serve in an organization for civil defense and public safety shall, before entering upon his duties, take an oath, in writing, before a person authorized to administer oaths in this state, which oath shall be substantially as follows:

"I . . . . . , do solemnly swear (or affirm) that I will support and defend the constitution of the United States and the constitution of the State of Maine, against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter.

"And I do further swear (or affirm) that I do not advocate, nor am I a member of any political party or organization that advocates the overthrow of the government of the United States by force or violence; and that during such time as I am a member of the . . . . . , I will not advocate nor become a member of any political party or organization that advocates the overthrow of the government of the United States by force or violence."

Sec. 15. Inconsistent laws suspended. Except as otherwise provided herein, all existing laws, rules and regulations inconsistent with the provisions of this chapter or of any order, rule or regulation issued under the authority of this chapter shall be suspended during the period of time and to the extent that such inconsistency exists.

Sec. 16. Aid in emergency; penalty. In the event of disaster as provided in section 6, the governor shall have the power and authority to utilize any available equipment and enlist the aid of any person to assist in the effort to control, put out or end the conflagration or other disaster, or aid in the caring for the safety of persons. Any person who thus refuses without reasonable cause shall upon conviction be punished by a fine of not more than $1,000, or by imprisonment for not more than 11 months, or by both such fine and imprisonment. The state shall be liable for any damage to any equipment utilized under the provisions of this chapter.

Sec. 17. Right of way; penalty; juridiction. Men and equipment required to respond to emergency calls under the provisions of this chapter shall have the right of way over all public ways and roads and the governor is hereby granted the right to close or restrict traffic on all roads in any area.

Whoever shall fail to give the right of way to men, vehicles and equipment required to respond to emergency calls under this chapter, or whoever shall enter upon roads which have been closed to traffic under the provisions of this chapter, shall, upon conviction, be punished by a fine of not more than $1,000, or by imprisonment for not more than 11 months, or by both such fine and imprisonment. Municipal courts shall have jurisdiction of all such offenses.

Sec. 18. Enforcement. It shall be the duty of every organization for civil defense and public safety established pursuant to the provisions of this chaper and of the officers thereof to execute and enforce such orders, rules and regulations as may be made by the governor under authority of the provisions of this chapter. Each such organization shall have available for inspection at its office all orders, rules and regulations made by the governor, or under his authority.

Effective August 6, 1949

## A Discussion of the Important Provisions of the Maine Civil Defense and Public Safety Act of 1949

It should be obvious to even a casual reader that Maine has a very comprehensive and well drawn Civil Defense and Public Safety Act on the statute books. This new law grants extensive powers to the Governor and to the Director of Civil Defense and Public Safety in time of emergency endangering any part of the state or all sections of the state.

The provisions of this chapter give to the Governor of the state the following very important powers and duties:

1. To create, when he deems it advisable, within the executive branch of the state government, a department of Civil Defense and Public Safety to be called the "Civil Defense and Public Safety Agency."
2. To appoint a director of Civil Defense and Public Safety to be called the "director" who shall be the executive head of the Civil Defense and Public Safety Agency and shall be responsible to the Governor for carrying out the program of Civil Defense and Public Safety.
3. To proclaim that an emergency such as a conflagration or other disaster exists or appears imminent in any part or in all sections of the state.
4. To have general direction and control of the Civil Defense and Public Safety agency, and shall be responsible for the carrying out of the provisions of this Chapter, and in the event of disaster beyond local control, may assume direct operational control, over all or any part of the Civil Defense and Public Safety functions within the state.
5. To coöperate with all departments and agencies of the federal government, with the offices and agencies of other states and with private agencies in all matters pertaining to the Civil Defense and Public Safety of the state and of the Nation.
6. To make, amend and rescind the necessary orders, rules and regulations to carry out the provisions of this Chapter.
7. To prepare a comprehensive plan and program for Civil Defense and Public Safety of this state.
8. To procure supplies and equipment, to instigate training programs and public information programs, and to take all other preparatory steps including the partial or full mobilization of Civil Defense and Public Safety Organizations in advance of disaster, in order to insure the furnishing of adequately trained and equipped forces of Civil Defense and Public Safety personnel in time of need.
9. To conduct such studies and surveys and to take such inventories of the industries, resources, and facilities of this state as may be necessary to ascertain the capabilities of the state for Civil Defense and Public Safety, and to plan for the most efficient emergency use thereof.
10. To enter into Mutual Aid arrangements with other states and to coördinate mutual aid plans between the political subdivisions of this state.
11. To create and establish such number of Mobile Reserve Battalions as may be necessary to reinforce Civil Defense and Public Safety Organizations in stricken areas and in accordance with the plans of the Federal Government.
12. To delegate any authority vested in him under the provisions of this Chapter, and to provide for the sub-delegation of such authority.

The provisions of the Maine Civil Defense and Public Safety Act of 1949 also provides for local organizations for Civil Defense and Public Safety as follows:

1. Each political subdivision of this state is not only authorized but also directed to establish a local organization for Civil Defense and Public Safety in accordance with the State Civil Defense and Public Safety Plan and Program. (The county is to be the political subdivision of the state for purposes of this local organization.)
2. Each local organization (each county) for Civil Defense and Public Safety shall have a director who shall be appointed by the executive officer or governing body (the county commissioners) of the political subdivision (the county) and who shall have direct responsibility for the organization, administration and operation of such local organizations for Civil Defense and Public Safety, subject to the direction and control of such executive officer or governing body.
3. The director for each local organization of Civil Defense and Public Safety, in collaboration with other public and private agencies within this state, may develop or cause to be developed, mutual aid arrangements for reciprocal Civil Defense and Public Safety Aid and Assistance in case of disaster too great to be dealt with unassisted.
4. Five deputy directors will be appointed in each county and will be responsible to the local director for certain essential phases of the Civil Defense and Public Safety organization.

This Maine Civil Defense and Public Safety Act of 1949 further provides, in event of disaster, as defined in Section 6, that:

1. The Governor shall have the power and authority to utilize any available equipment.
2. The Governor shall have the power and authority to enlist the aid of any person to assist in the effort to control, put out or end the conflagration or other disaster, or aid in the caring for the safety of persons.
3. The Governor shall have the right to close or restrict traffic on all roads in any disaster area and men and equipment required to respond to emergency calls under the provisions of this Chapter shall have the right of way over all public ways and roads.

4. The municipal courts shall have jurisdiction of all offenses under this act and any person who thus refuses to heed the Governor's summons without reasonable cause or shall fail to give the right of way to men, vehicles and equipment required to respond to emergency calls under this Chapter or who shall enter upon roads which have been closed to traffic under the provision of this Chapter, shall, upon conviction, be punished by a fine of not more than $1,000 or by imprisonment for not more than 11 months or by both such fine and imprisonment.

There are many other less important aspects of this Maine Civil Defense and Public Safety Act of 1949 which can be found by a careful detailed reading of the entire chapter which is included above in an unabridged form. In time of an emergency duly proclaimed and publicized in Maine, it is quite clear that the Governor or his properly authorized representative certainly has essential dictatorial powers and can enlist the necessary personnel and can procure supplies and equipment that are needed to assist in the efforts to control the conflagration or other disaster. In other words, if one is tapped on the shoulder by the Governor or by one of his authorized representatives in time of a local disaster, it would certainly appear that going "fishing" or playing "hookey" instead of assisting with the disaster, would not be the wise thing to do.

The Governor did deem it advisable to create within the executive branch of the state government, a department or agency of Civil Defense and Public Safety in November, 1949; and $15,000 was made available for use in setting up this new department of Civil Defense and Public Safety. Colonel Spaulding Bisbee of Cape Elizabeth, Maine, was nominated by the Governor to be the first Director of Civil Defense and Public Safety for the State of Maine in November and the Governor's Council confirmed the appointment in December, 1949.

Colonel Spaulding Bisbee, the State Director, has set up his office in the State House in Augusta and is working hard at the job of organizing an adequate Civil Defense and Public Safety Organization for this state. He has already sent out letters requesting the County Commissioner of each county within the state to name a local Civil Defense and Public Safety Director for each county. In addition, five deputy directors are to be appointed in each of the sixteen counties within this state whose duties would include: communications, transportation, air raid warning and rescue; plant protection, fire fighting, warden and police services; radiological, chemical and special weapons defense and medical services; evacuation and civilian war aid; legal administrative, training and public information functions.

Colonel Bisbee, the State Director, has in mind four Mobile Reserve Battalions each one of which is to be composed of a commander and 164 men, two of whom are to be physicians and six of whom are to be first aid men and stretcher bearers. One of these battalions is to have headquarters in Portland, one in Lewiston-Auburn, one in Augusta and one in Bangor.

Within the past few weeks, the Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association has had two conferences with Colonel Spaulding Bisbee, the State Director of Civil Defense and Public Safety, which conferences were devoted to a consideration of the medical aspects of Civil Defense Planning. It is a pleasure to be able to report that the plan for providing Emergency Civilian Medical Care as submitted to President Ralph A. Goodwin and to the Council and to the House of Delegates at the Fall Clinical Session of the Maine Medical Association by the Committee on Emergency Civilian Medical Defense has met with the complete approval of the State Director of Civil Defense and Public Safety, Colonel Spaulding Bisbee. These recommendations which have been made by the Committee on Emergency Civilian Medical Defense of the Maine Medical Association are as follows:

1. GENERAL HOSPITALS TO BE REQUESTED TO:
   a. *Coöperate with the Maine Medical Association in an effort to work out a plan to provide emergency medical care for civilian disaster casualties within this state.*
   b. *Set up a standard operational procedure (SOP) with the least possible delay,* which SOP would provide a detailed outline of procedure to be carried out in case of a disaster in their locality or to assist other area when needed.
   c. *Prepare:*
      1. *Plans for maximal expansion of present bed capacities.*
      2. *Select alternate hospital sites if transfer becomes imperative.*
      3. *Train additional personnel such as: laboratory technicians, surgical assistants, practical nurses and anesthetists.*
      4. *Develop plans for evacuating occupied beds if disaster strikes.*

2. ORGANIZATION OF ACTIVE STAFF MEMBERS OF GENERAL HOSPITALS FOR EMERGENCY DUTY.
   a. *The members of the active professional staff of each general hospital (with a bed capacity for 25 or more persons) be organized in a manner which will permit the following in-*

*portant functions to be carried out within the hospital by its active staff members in event of a local disaster.*

1. PROFESSIONAL MEDICAL PERSONNEL FOR DUTY AT SCENE OF DISASTER. *Designate one or more experienced members of the medical profession in each larger town or city to proceed immediately to the scene of any local disaster for the purpose of screening the casualties to determine which are the more seriously injured and in need of immediate hospitalization,* and which have minor injuries only and can be referred to the first aid stations.
2. EMERGENCY HOSPITAL UNITS: *Assign the members of the Active Professional Staff to Emergency Hospital Units in accordance* with the blueprint, for such an organization as outlined below.
   a. The Surgeon and Assistant Surgeon.
      The Orthopedic Surgeon.
      The Ear, Nose and Throat Specialist.
      The Internist and the Assistant Internist, who are assigned to duty on their respective hospital services at the time of any disaster should comprise the group of professional men to be designated as the *First Emergency Hospital Unit* in each general hospital located within this state.
   b. *Auxiliary Emergency Hospital Units* would be made up of the General Surgeon, the Assistant Surgeon, the Orthopedic Surgeon, the Ear, Nose and Throat Specialist, the Internist and the Assistant Internist who are on duty on their respective services at the other periods of the year, and each of these units should be assigned an on-call priority number which should change automatically, of course, each time when the major services at that particular hospital were changed.
   c. Other specialists such as the Neuro-Surgeon, the Genito-urinary Surgeon, the Dental Surgeon, etc., whenever available on the active staff of a general hospital; should be kept on an on-call basis and summoned to the hospital only in the event one or more of any group of disaster victims had the type of injuries which might require any one of those specialized services.

b. *Medical Director or Superintendent of each General Hospital to be requested to:*
   1. *Summons immediately the members of the actve staff* assigned to the *First Emergency Hospital Unit* at that particular time and this unit should be expected to proceed immediately to its station within the hospital and to provide the necessary emergency medical care for the disaster victims as they were brought to the Hospital.
   2. *Summons the members of the Auxiliary Emergency Hospital Units* in the order of their priority as additional surgical and medical help was required in the event it was obvious that the numbers of casualties were in excess of what could be handled by the members of the first emergency hospital unit.

3. SURGICAL-MEDICAL AUXILIARY HOSPITAL FIELD TEAMS.
   a. The members of the active professional staff of each general hospital within this state with bed capacity for 150 or more patients be requested to organize and be prepared to furnish on request of the State Director of Civil Defense and Public Safety or of his authorized deputy two or more *Surgical-Medical Auxiliary Hospital Field Teams* to be organized as follows:
      1. *Each Surgical-Medical Auxiliary Field Team* should be composed of: One general surgeon, one assistant surgeon, one anesthetist and one internist.
      2. *Each Surgical-Medical Auxiliary Hospital Field Team* should, in as far as possible, be made up of clinicians who are not eligible for active military duty in the Armed Forces.
      3. *An Alternate Surgical-Medical Auxiliary Field Hospital Team* would be required, for reasons which are obvious, for each general hospital which found it necessary to place members of their active professional staff on the roster of the surgical-medical auxiliary hospital team they organized.
   b. *The Surgical-Medical Auxiliary Field Hospital Teams* when actually called to duty in the field would take over and operate an auxiliary hospital unit and would work with the State Civil Defense and Public Safety Director or his designated regional director.

4. PROFESSIONAL CLEARING STATION FIELD TEAMS.
   a. The professional staffs of general hospitals within the state with beds for over 50 but less than 150 patients to be requested to furnish two, while those with beds for less than 50 patients be requested to furnish one *Profes-*

*sional Clearing Station Field Team* to be organized as follows:

1. *Each Professional Clearing Station Field Team* should be composed of one surgeon, and assistant, and one other physician with a working knowledge of anesthesia.
2. *Each such professional clearing station field team* should be organized from those unqualified for military service as previously indicated.

b. *Each professional clearing station field team* would be expected to work in conjunction with their county Civil Defense and Public Safety Director and would take charge of clearing stations located in or closely adjacent to a major disaster area within their own or in immediately adjacent counties.

5. PROFESSIONAL FIRST AID FIELD TEAMS.

a. The county medical societies should be responsible for the organization of the necessary number of *professional first aid field teams* required for their respective localities.
   1. *The professional first aid field teams* would be made up of two general practitioners.
   2. *Each professional first aid field team* should be organized from those physicians and surgeons unqualified for military service as previously indicated.

b. These *professional first aid field teams* would be expected to work in conjunction with the county Civil Defense and Public Safety Director in their immediate county or in a county immediately adjoined to that of their own in event of an emergency involving part or all of the state.

The Committee on Emergency Civilian Medical Defense believed that it is imperative that the physicians of Maine understand their obligations toward the future and that they, of their own free will, accept their great responsibilities for the safety and for emergency medical care for the civilian population living within this state. No one can longer doubt that another war will be fought with either atomic bombs or hydrogen bombs many times more destructive than the "baby type" atomic bomb dropped on Hiroshima and Nagasaki. Now that Russia has the atomic bomb in production, and without a workable agreement in sight for international supervision and control of atomic energy it is impossible to longer assume that there will never be an atomic war. Therefore, the technicological preparations which alone will cut down the enormous casualties if an atomic missile is detonated over one of our large cities with its closely packed civilian population, must not be left to chance or to hurried last-moment action. Our civilian population in Maine must not be left defenseless: against a holocaust from enemy action that will come without warning, against enemy sabotage or against a holocaust from natural causes like floods, fire, etc. Emergency medical supplies and equipment must be planned for in advance and must be quickly available for use. The huge quantities of medical supplies and the large number of medical personnel that must be mobilized in order to treat 50,000 casualties cannot be obtained without much previous planning and without teamwork and the full coöperation of all the many agencies that will make up the Civil Defense and Public Safety Organization on the national, regional, state and local levels.

### Conclusions

1. A well integrated Civil Defense and Public Safety Organization is in the process of building here in Maine.

2. The Maine Civil Defense and Public Safety Act of 1949 is a superbly well conceived and concisely written Chapter because it adequately covers the following very essential points, namely:
   a. Responsibility for all the important activities involved in providing this state with an adequate Civil Defense and Public Safety Act has been fixed by law.
   b. Provision for the administration of this Civil Defense and Public Safety Act has been made.
   c. Provision for the allocation of funds to operate the Civil Defense and Public Safety Organization has been included.
   d. Legal authority for the Governor and for the Civil Defense Director to draw up plans and to procure the necessary personnel, equipment and supplies required to adequately cope with any disaster within the confines of this state, has been written into the new law.
   e. Penalties in the form of stiff fines and long terms of imprisonment for those persons who do not respond or who do not obey the emergency rules and regulations have been set up.
      1. Provision for such studies, surveys and for inventories of the industries, resources and facilities of this state as may be necessary to ascertain the capabilities of the state for Civil Defense and Public Safety, and to plan for the most efficient emergency use thereof, has been made.

3. The Governor has deemed it advisable to create within the executive branch of the state government a department of Civil Defense and Public Safety called the "Civil Defense and Public Safety Agency" and a director of Civil Defense and Public Safety called the "director."

*Continued on page 85*

# REPORT OF CLINICAL SESSION

The third Clinical Session of the American Medical Association was held in Washington, D. C., December 6-10, 1949. It was regarded by the rank and file as "bigger and better than ever," and considered by the Delegates and officers as one of the most important meetings ever held.

The Delegates, called to order by Dr. Francis Borzell, of Philadelphia, speaker of the House, faced several major issues with courage. Dr. Borzell, in his address to the Delegates, said that "we have gained ground since we last convened." Dr. Henderson, President-elect, made the following statement: 'American medicine is stronger today than at any other time in its history. Discussion and bickering have almost disappeared. We have achieved unity of purpose." On this key note, the Delegates worked diligently to compose a record of harmonious action.

The question of dues came before the House for discussion. Unanimously the Delegates voted to approve the resolution establishing annual dues and agreed to set them at $25.00 for the first year. It was agreed, furthermore, to have the State Societies collect the dues and forward them to the American Medical Association. The money will be used to continue the campaign of education in the accomplishments of American medicine and the American way of practicing medicine at its present high standards. In order to convince the public the medical profession must give a good account of its accomplishments and a national campaign runs into a lot of money.

Our State Treasurer has reported that over 80 percent, about 83 percent, of the membership in our State Society paid the assessment last year. That is a good record. It is a record the members will want to maintain this year. Let us continue to stay united on this front. Our present plan of practice depends upon your support. Do not believe differently.

Many other important resolutions received the approval of the Delegates. They reconsidered their previous adoption of the amended Hess Report and referred the report back to a committee for further study. They made it clear that the members of the House were on the alert against the encroachment of hospitals upon private practice. They formulated plans to enlarge the Washington office of the American Medical Association and set up a seven man committee to act in advisory capacity.

Plans for a "Junior American Medical Association" among internes and medical students were initiated. The proposal met with enthusiastic support. The sponsors hope that many young men entering the medical profession will take an active part in the organization. Our current campaign to enlighten the public about the American Way of practicing medicine must be continued by the younger men.

The House noted, with interest and applause, that many Insurance Companies have voluntarily increased their fees for examinations. Our House of Delegates, at the Poland Spring Meeting last June, discussed the proposition of increasing fees. Other resolutions recommended increased salaries for Public Health Officers, increased allowances for the expenses of our officers, and recommended a thorough survey of private blood banks and gave support to a program of national scope to be organized by the Red Cross.

Believe, as you read, that your representatives in the American Medical Association, House of Delegates have the interests of the practicing doctors of medicine uppermost in their deliberations. Do not allow yourselves to take any stock in the statements that the American Medical Association is a "Dictatorship." You are the American Medical Association. If you have suggestions for improvement, criticisms of the policies, attend your county society meetings and make your ideas known. The County Society Meetings offer you every opportunity to express your ideas. Go to the meetings and "blow off your steam." You will be heard not only in your local meeting but also in your state meeting and eventually in the American Medical Association House of Delegates. May I suggest that your grumblings in small groups may be important matters. Present them before your County Society meetings and give them an official approval. They will be considered, and carefully considered, in your deliberative bodies. Let us discuss in our established organizations all our family affairs. The House of Delegates of the American Medical Association will never let you down.

The Scientific Meeting met with general approval. The attendance was the largest ever and from all reports was pleasantly gratified with the program. Your delegate had official duties which kept him from the Scientific Meetings. He did stretch his stay in Washington an extra day for two reasons. One, to hear the discussion in the Pediatric Section about RH Factors and Replacement Transfusions; also Dr. Farber's report on Treatment of Leukemia and a discussion on Rheumatic Fever. Secondly, to visit the Navy Hospital at Bethesda under the guidance of a former Maine General Hospital Resident. And your delegate must report that he feels amply repaid for the time spent, and indebted to Lt. Galbranson for his personally conducted tour of the Navy Hospital. In conclusion, may I say again, that I wish more members of the Maine Medical Association would attend

the meetings of the American Medical Association. The members are welcome to the open meetings of the House of Delegates. The Fellows of the American Medical Association are welcome to all the Section meetings. You, and I mean you, the Individual member, of the County Society make up the American Medical Association. Why don't you go to the meetings? Your delegate meets a few interested and enthusiastic members from the good old State of Maine, but altogether too few. The American Medical Association is your organization. Plan to attend a meeting. The next meeting will be held in San Francisco. Think about it; give it serious consideration. You will have an enjoyable trip to the West coast. You will have a happy time at the meeting; California will be delighted to welcome you. And you will find out at first hand what your national organization, the American Medical Association, is doing in this time of transition.

THOMAS A. FOSTER, M. D.,
*Delegate.*

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*Epiphyseal Injuries—Continued from page 62*

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*What Every Maine Doctor Should Know About Civil Defense and Public Safety Planning—Continued from page 83*

4. The state director of Civil Defense and Public Safety has already:
   a. Requested the County Commissioners of each county within this state to appoint a local civil defense and public safety director.
   b. Established four "Mobile Battalions" to be composed of a commander and 164 men each with headquarters in Augusta, Bangor, Lewiston-Auburn and Portland.
   c. Requested the presidents of the various Maine colleges to appoint two members of their respective faculties to a "Committee on Chemical and Radiological Defense."
5. The Committee on Emergency Civilian Medical Defense of The Maine Medical Association has drawn up "Recommendations" for providing the medical personnel that will be required for *Emergency Hospital Units* in the general hospitals already in operation within this state and for *Emergency Hospital Field Units* to operate auxiliary hospitals, *Professional Clearing Station Teams* to operate the emergency clearing stations and for *Professional First Aid Teams* to operate the emergency first aid stations that would be required in event of a disaster or holocaust within the confines of this state.

## COUNTY SOCIETIES

**Androscoggin**
President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Joseph A. Donovan, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Frederick C. Dennison. M. D., Thomaston
Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Linwood M. Rowe, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Albert J. Bernard, M. D., Skowhegan
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, February 8. There were ten members and seven guests present. A communication from the Chairman of the Editorial Board of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION was read; this communication concerned reviewing articles in the JOURNAL at the regular meetings of the society. No action was taken at this meeting.

Dr. J. R. Mabee of Bangor, gave an interesting talk with slides on the subject: "Lesions of the Mouth."

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## Lincoln - Sagadahoc

The annual meeting of the Lincoln-Sagadahoc Medical Society was held at "The Days" in Newcastle, January 24, 1950. There were fifteen members present.

Dr. David Oppenheim of the Bingham Fund Associates, Boston, was the guest speaker. He spoke on Cardio- Vascular Diseases, including the congestive heart failures, paroxysmal tachycardia, paroxysmal arrythmias, and fibrillation and treatment with Dicumarol, Digitalis and Quinidine.

Dr. Ralph Powell and Dr. Robert W. Belknap presented a case of a child with duodenal atresia, who was operated on and is now gaining weight.

The following officers were elected for 1950:

President, Harry F. Morin, M. D., Bath.

Vice President, Arthur A. Nichols, M. D., Wiscasset.

Secretary-Treasurer, Neil L. Parsons, M. D., Damariscotta.

Credentials Committee: Drs. John F. Dougherty and Stanley R. Lenfest.

Delegates to the Maine Medical Association: Robert W. Belknap, M. D., Damariscotta, and Francis A. Winchenbach, M. D., Bath.

NEIL L. PARSONS, M. D.,
*Secretary.*

# NEWS AND NOTES

### The American Congress of Physical Medicine

The American Congress of Physical Medicine will hold its twenty-eighth annual scientific and clinical session August 28, 29, 30, 31 and September 1, 1950, inclusive, at the Hotel Statler, Boston, Massachusetts. Scientific and clinical sessions will be given on the days of August 28, 29, 30, 31 and September 1, 1950. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction seminars will be held August 28, 29, 30 and 31. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapy Technicians or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

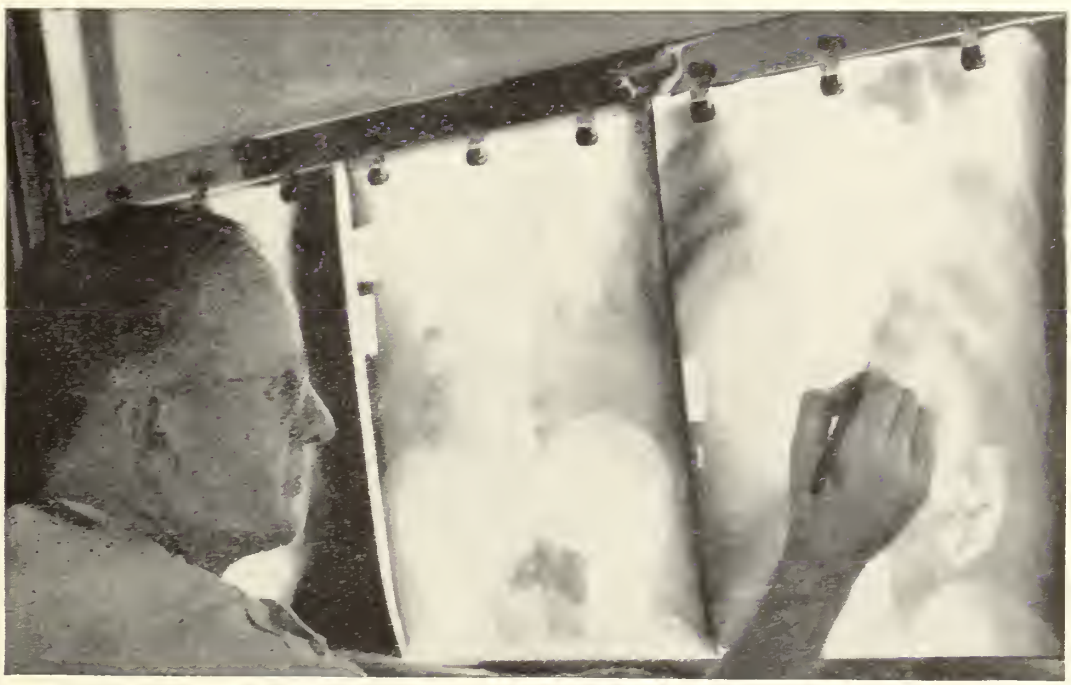
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RESEARCH IN THE SERVICE OF MEDICINE

## Announcement

### Arthritis Clinic

An out-patient clinic for Arthritis sponsored jointly by the New England Chapter of the Arthritis and Rheumatism Foundation and the Maine General Hospital has been established at the Maine General Hospital.

The first clinic was held on January 16, 1950. For the present this clinic will meet at 9.00 A. M. on the third Monday of each month.

This clinic will function as a consultation clinic. Patients will also be treated on a clinic basis if the referring physician so desires, or will be referred back. Patients able to pay are expected to pay the usual clinic rates.

An effort is being made to set up a similar clinic at the Eastern Maine General Hospital in Bangor.

## American Board of Ophthalmology

Candidates for the certificate of the American Board of Ophthalmology are accepted for examination on the evidence of a Written Qualifying Test. These Tests are held annually in various parts of the United States.

Applications are now being accepted for the 1951 Written Test. They will be considered in order of receipt until the quota is filled.

Practical Examinations for Acceptable Candidates 1950

Boston — May 22-26
Chicago — October 2-6
West Coast — January, 1951

A new Directory of all diplomates to date, arranged alphabetically and geographically, will be published early in 1950. No biographical material included.

Important: Diplomates are urged to keep the Board office informed of all changes of address.

Officers for 1950

Chairman — Dr. Algernon B. Reese
Vice-Chairman — Dr. John H. Dunnington
Secretary-Treasurer — Dr. Edwin B. Dunphy

Executive Office, 56 Ivie Road, Cape Cottage, Maine

## The International and Fourth American Congress on Obstetrics and Gynecology May 14-19, 1950 — Hotel Statler — New York

The Chairman of the General Program Committee for the forthcoming Congress is Dr. Howard C. Taylor, Jr., of New York City. To date the following speakers have been placed on the program by Doctor Taylor and assigned the designated subjects. Each paper will be about twenty-five minutes in length and will be followed by a formal discussion.

Professor Heinrich Martius of the Department of Obstetrics and Gynecology of the University of Goettingen in Germany will speak on the general topic: Radiation Techniques and Results in the Treatment of Cancer of the Cervix.

Dr. Leon Gerin-Lajoie of the University of Montreal will speak on utero-salpingography as a means of differential diagnosis in hemorrhages of the uterus.

Dr. Carlos D. Guerrero of Mexico City will present an address based on the use, misuse and abuse of surgery in gynecology.

Dr. Arthur T. Hertig of the Harvard Medical College will address the Congress on "Implantation of the Human Ovum."

Dr. Carl Kaufmann, Professor of Obstetrics and Gynecology of the Faculty of Medicine at Phillip University at Marburg in Germany will speak on the subject of the relations of endocrinology to gynecology.

Dr. Hans Ludvig Kottmeier of the Gynecological Department of the Radio-pathology Institute in Stockholm, Sweden, will lecture on various aspects of cancer therapy.

Dr. Laksmanaswami Mudaliar of Madras University in Madras, India, will speak on a topic related to the toxemias of pregnancy.

Dr. Manuel Luis Perez of Buenos Aires has taken as his subject: "The Usefulness of Antibiotics in Obstetric Surgery."

S. R. M. Reynolds, Ph. D., of the Department of Embryology at the Carnegie Institute in Washington, D. C., will speak on: The Contractility of the Human Uterus and Its Physiological Basis.

Dr. Walter Seegers of the Department of Physiology of Wayne University College of Medicine in Detroit will talk on the work done by him and Dr. Charles Schneider on the fundamental aspects of the blood clotting problem and the practical aspects of the problem in obstetrics.

Dr. Harold H. Sheehan, Professor of Pathology at the School of Medicine of the University of Liverpool in England, will speak on the kidney in abruptio placentae.

Dr. Jean Snoek of the Hospital St. Pierre at the University of Brussels has for his subject: Some Aspects of the Renal Function in Pregnancy and Their Morbid Consequences.

Dr. Herbert F. Traut of the University of California Medical School will speak on the early diagnosis of uterine cancer.

The above speakers are all to appear during the five morning general sessions of the program and the list is but partially completed. Other noted men will take part in the afternoon programs of the medical section of the Congress being arranged by a sub-committee headed by Dr. Newell Philpott of Montreal. Separate afternoon programs are being arranged for nurses by Miss Margaret A. Losty, R. N., of New York, for public health people by Dr. Edwin F. Daily of Washington and for hospital administrators by Dr. G. Otis Whitecotton of Alameda. Doctor Daily is also arranging the program of speakers on the economic aspects of obstetrics and gynecology that will occupy Wednesday morning. The Wednesday afternoon program will be entirely planned and presented by the National Federation of Obstetric-Gynecologic Societies. For registration details, housing data and other aspects of the Congress address inquiries to Dr. Fred L. Adair at 161 East Erie Street, Chicago 11, Illinois.

## Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Richard L. Chasse, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

## Department of Health and Welfare
## Services for Crippled Children
## Clinic Schedule — 1950

### Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

### Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

### Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

### Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.


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## Woman's Auxiliary to the Maine Medical Association

### Mid-Year Report

This first year our work has been mostly organization. The Woman's Auxiliary to the Maine Medical Association now has 190 members; County, State and National. We have seven well organized County Auxiliaries. These counties are active in Public Relations work. One county raised $125.00 for the Polio drive. Auxiliary members of some of the counties are planning to work with the Nurse Recruitment Committee of the Maine State Nurses' Association. Each county plans to hold some study group meetings this year.

Many of our Auxiliary members accepted the invitation of the Maine Medical Association to attend their briefing sessions for speakers on Medical Problems of the Day.

On November 6 and 7, 1949, the Woman's Auxiliary held a meeting in conjunction with the Fall Clinical Session of the Maine Medical Association. We were fortunate to have Mrs. Marguerite Wahlquist, First Vice President of the Woman's Auxiliary to the American Medical Association, speak to us. Also, Dr. Ralph Gampell from England spoke on Socialized Medicine.

I have visited ten counties, spoken at eleven meetings, and traveled over 2,000 miles, besides attending the Chicago Conference.

It has been a great pleasure to see physicians' wives made happy by cultivating new friends through our new Auxiliary to the Maine Medical Association.

MRS. CHARLES W. STEELE,
*President.*

## HOSPITAL STAFF MEETINGS

Open to the Profession

| CITY | HOSPITAL | DATE |
|---|---|---|
| Augusta | Augusta General Hospital | 1st Wednesday |
| Bangor | Eastern Maine General | 2nd Tuesday |
| Bath | Bath Memorial Hospital | 1st Tuesday |
| Belfast | Waldo County | 2nd Friday |
| Biddeford | Webber Hospital | 2nd Thursday |
| Boothbay Harbor | St. Andrew's Hospital | 4th Tuesday |
| Caribou | Cary Memorial | 1st Wednesday |
| Damariscotta | Miles Memorial | 2nd Thursday |
| Farmington | Franklin County Memorial | 2nd Monday |
| Greenville | Charles Dean Hospital | 2nd Wednesday |
| Hartland | Scott Webb Memorial Hospital | 1st Wednesday |
| Lewiston | Central Maine General<br>St. Mary's General | 1st Monday<br>2nd Monday |
| Portland | Maine Eye and Ear Infirmary<br>Maine General<br>Mercy | 1st Tuesday<br>2nd Friday<br>3rd Thursday |
| Presque Isle | Presque Isle General | 1st and 3rd Tuesdays |
| Rockland | Knox County General | 1st Monday |
| Rumford | Rumford Community | 4th Wednesday |
| Sanford | Goodall Memorial | 2nd Monday |
| Waterville | Sisters<br>Thayer | 2nd Tuesday<br>Every Thursday |

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

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## Hospital Notes



Standing: Marion L. Jackson, R. N. (Administrator); O. B. Head, M. D.; Marion Moulton, M. D.; J. H. MacDonald, M. D.; J. C. Myer, M. D., Vice President; W. E. Fenderson, M. D.; A. S. Lincourt, M. D.; R. L. Vachon, M. D.; R. S. Belmont, M. D.; W. E. Dionne, M. D.

Seated: S. A. Cobb, M. D., Secretary-Treasurer; C. E. Richards, M. D.; M. Bacon, M. D., President; E. W. Holland, M. D.; H. D. Ross, M. D.; D. B. Stearns, M. D., Speaker. (W. L. Morse, M. D., not present.)

### Henrietta D. Goodall Hospital, Inc.

### Sanford, Maine

The regular Staff Meeting of the H. D. Goodall Hospital was held on Tuesday, January 10th, 1950, at 4.30 p. m., at the Hospital. The program included as guest speaker, Dr. David Belford Stearns, Assistant Professor of Genito-Urinary Diseases, Boston University School of Medicine and member of the Staff of Beth Isreal Hospital and Massachusetts Memorial Hospital, Boston, Mass. His subject was "Advances in the Diagnosis and Treatment of Genito-Urinary Diseases."

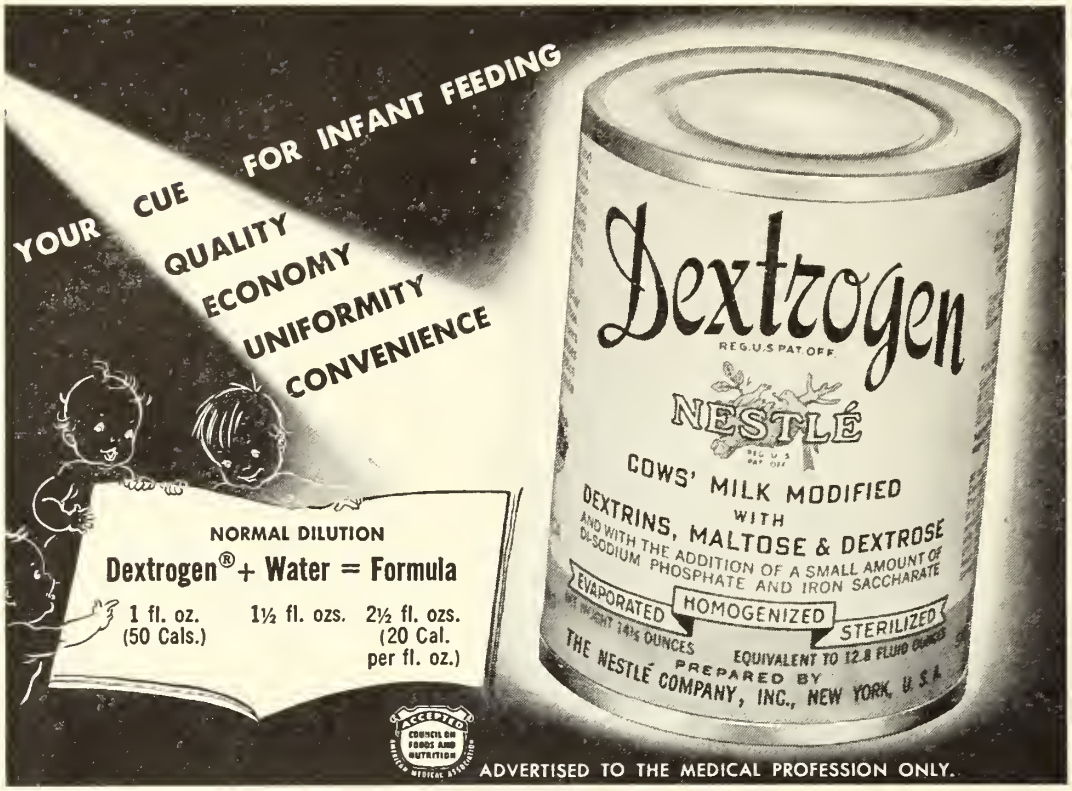
Miss Marion L. Jackson, R. N., newly appointed Administrator of the Goodall Hospital, was introduced. Miss Jackson is a graduate of Newton High School, Newton, Mass., Bradford Junior College, Bradford, Mass., and the Professional School of the Children's Hospital, Boston. She has served as Administrator of the Malden Hospital, Malden, Mass., and Administrator of the Addison Gilbert Hospital, Gloucester, Mass. For many years a member of the American College of Hospital Administrators, Miss Jackson was admitted in September, 1947, as a Fellow of this organization. Her qualifying thesis was a 25,000 word essay on "Public Relations in a Community Hospital." She is one of the few women in New England holding such a Fellowship.

Those present at the meeting were: Drs. O. B. Head, H. D. Ross, S. A. Cobb, E. W. Holland, C. E. Richards, R. S. Belmont, M. Bacon, R. L. Vachon, J. C. Myer, A. S. Lincourt and W. E. Dionne, of Sanford; Dr. J. H. MacDonald, of Kennebunk; and Drs. Marion Moulton and W. E. Fenderson, of Newfield.

The next regular Staff Meeting will be held February 14th, at 4.30 p. m., with dinner being served. Dr. George Bourgeois of Boston, Mass., will be guest speaker. Dr. Bourgeois is Surgeon in charge of Gynecology at the Boston Dispensary, and on the Surgical Staff of the Carney Hospital. He is also Instructor in Gynecology at Tufts College Medical School. His subject will be "Gynecological Problems."

The Trustees of the Hospital have recently called attention to new hospital improvements embracing a $60,000 building addition. These include enlargement of new premature room, new nursery with new bassinettes and new children's ward. Previously, the hospital had added a new X-ray room with completely new and modern equipment.

S. A. Cobb, M. D.,
*Secretary of Staff of Goodall Hospital.*







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The Journal
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Volume Forty-One Portland, Maine, April, 1950 No. 4

# REPAIR OF VENTRAL HERNIA WITH TANTALUM GAUZE IN A DEBILITATED AND TISSUE DEFICIENT PATIENT

Arthur H. McQuillan, M. D., Waterville, Maine

The use of metallic substances is not new in the repair of hernias. Since the beginning of this century, as a matter of fact the first report was in 1894,[1] metallic substances were used to repair hernias where there was tissue deficiency. During the last decade many different and sundry methods have been employed by surgeons in their search for the perfect material to use where there were not sufficiently strong anatomical structures present that could be utilized for the successful repair of ventral defects. During the past five years there have been many published reports of successful repair with the use of tantalum gauze.

Tantalum, which is the 73rd element in the Periodic Table, was discovered by Ekeberg[2] in 1802, and was so-named because he found it to be tantalizing when he attempted to dissolve it in mineral acids. It is manufactured in many different forms; namely, sheets, foil, ribbon, screws, wire, plates and gauze or screen, the latter the one we are interested in. Tantalum is strong and very malleable. It was found to be extremely inert by Burke[3] in 1940, when he used it experimentally in animals. Some of the early experiments were done on dogs, in which all of the abdominal wall except the peritoneum had been removed and the tantalum had been used to supplement or take the place of the muscle and fascia. These animals were sacrificed in from one to nine months. In these cases it was found suitable to be used as a replacement of, rather than as a reinforcement for, the musculofascial layer of the abdominal wall in hernial defects. Macroscopically,[4] in man as well as in animals, observations have shown that the fibrous tissue encapsulates the gauze and grows into it, in a period of about eight months. The only untoward reaction to date has been that the gauze becomes more or less brittle and may break, but this breaking does not appear to alter the strength of the repair. The use of tantalum gauze has been the one metallic or foreign substance that can be used successfully in repair of abdominal wall defects when an exogeneous material must be used. At first the gauze was sutured in place with linen sutures but most surgeons today feel that the best results are obtained when tantalum wire is used for suture material. Both the gauze and the wire can be obtained from most surgical supply houses. The only drawback at the present time is the cost of this material, but considering the results obtained, the cost is negligible. As available today, the gauze is made up of 3 mm. tantalum wire woven into a screen cloth which is 50 x 50 weave; in other words fifty wires criss-crossing to each square inch. The surgeon prefers not to substitute a foreign material for human tissue, yet there are times when human tissue cannot be utilized to completely and satisfactorily close a defect.




"A.-P. roentgenogram showing tantalum gauze in place."



"Lateral roentgenogram showing tantalum gauze in abdominal wall."

The following case report illustrates the value of this procedure in an extremely debilitated individual in whom there was a large anatomical defect of the abdominal wall.

This man, fifty-nine years of age, entered the Thayer Hospital in November, 1949, complaining of a very large, quart-sized tumor that protruded from his right upper abdomen. This had incapacitated him sufficiently so that he had been unable to work in spite of the fact that he had tried using a corset, Ace bandage, and adhesive plaster over his hernia. Five months before, July 2, 1949, he had been taken very suddenly, severely and acutely ill with abdominal pain and within twenty-four hours had been admitted to another hospital wahere an immediate laparotomy was performed and a perforated peptic ulcer found. According to his report the ulcer was closed and the incision drained. As would be expected it persisted in draining, in his case for a period of ten weeks. Convalescence was extremely stormy. It had been necessary to institute a duodenal tube for ten days and feed him intravenously during that time. During this period cough was persistent. Twenty years before, when he was thirty-nine years old, he had been ill with pneumonia for twenty-six weeks. He eventually went to a hospital where he was found to have empyema which was drained. After about a year he recovered sufficiently to return to work but since that time he has been frail and has had an almost constant productive cough. He also had a hernia in his left inguinal region of two years' duration which had enlarged since the time of his operation in July.

Physical examination showed him to be poorly nourished, weighing but 126 pounds. There was bilateral emphysema and deformity in his left chest posteriorly with a scar at the site of his empyema drainage. Very few breath sounds were heard over this area and considerable moisture was present. His chest roentgenogram showed that the pulmonary fields were emphysematous. There were rib abnormalities on the left, at the site of the previous empyema, and obliteration of the left costophrenic angle, due to old adhesions. Abdominal examination showed an incisional scar in the right upper abdomen about six inches long. When he coughed or strained or stood upright, a quart-sized tumor protruded. The edges of the muscle and fascia were retracted the entire length of the incision vertically and laterally from the midline into his flank. In other words, the right rectus sheath was missing. There was a tumor in the left groin which could be reduced through the external inguinal ring directly into his abdominal cavity, which was considered to be a direct inguinal hernia. The remainder of his physical examination was not remarkable. Blood pressure, urine, blood picture and circulatory system were essentially normal.

The admission diagnosis was: chronic emphysema, bilateral; old pleuritic adhesions, base of left lung;

large ventral hernia in the right upper abdomen and left direct inguinal hernia.

After a few days he was considered to be in as good condition as possible and operation was performed under spinal anesthesia. His left inguinal hernia was repaired with the Bassini technic. Following this the incision in his right upper abdomen was reopened. Many adherent structures consisting of omentum and many coils of small and large bowel were found incorporated in the hernia. The various anatomical layers were dissected free and an attempt at closure using his own fascia was carried out. There was considerable tension in some of the sutures and it was obvious on about his third postoperative day that this procedure would not be successful in closing the ventral hernia. His temperature was elevated, he coughed almost constantly and his wound opened subcutaneously. After two and one-half weeks, he was discharged with his cough quiescent, his inguinal hernia solid, but his ventral hernia still present.

He was readmitted to the hospital in January of this year, still unable to work and with the ventral hernia in his righ upper abdomen nearly as large as ever. He was again prepared for operation and under spinal anesthesia, the ventral hernia was reopened. This time the intestinal adhesions which had been present before, had not reformed. After dissecting out the various anatomical layers we were able to very satisfactorily close the peritoneum, but it was impossible to approximate the posterior and anterior fasciae of the rectus sheath over the peritoneum. There was an area measuring 6 by 2 inches which was covered only by peritoneum. A piece of tantalum gauze 8 by 4 inches in size was sutured over this defect with tantalum wire, the sutures being placed at about half-inch intervals around the edge of the wire into the fascia. The skin was closed over this with silk. He was returned to bed in about half the operating time required at the first instance. His convalescence was considerably improved over that of his first admission. Although he had considerable productive cough, there was no abdominal distention. Aeresol penicillin was immediately effective in diminishing the cough on his third postoperative day. His convalescence from then on was uneventful. Considerable fluid formed over the tantalum gauze which drained at the lower angle of his wound for about fourteen days, necessitating daily dressings. This gradually diminished and he was discharged on the seventeenth postoperative day.

Since that time he has been entirely free of symptoms and when seen at the end of six weeks his hernia was healed, he was wearing no support whatsoever, and having absolutely no discomfort. The accompanying roentgenograms show the tantalum mesh in place.

This case has been presented to show that tantalum mesh can be used successfully in a large abdominal defect, even in a debilitated patient. I wish to thank Drs. C. E. Towne, E. W. Harlow, G. J. Robertson and V. J. Moore, who were associated with me on this case.

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## TRANSITIONAL CELL CARCINOMA OF RENAL PELVIS—CASE REPORT*

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A sixty-eight-year-old white man was referred to Thayer Hospital with complaints of malaise and weakness of four months' duration. History revealed that there had been many episodes of frank urinary bleeding, each instance being of two to three days' duration. The first such occurrence was noted two years prior to admission to the hospital. There had been no pain at any time. During the year prior to entry, frequency of urination, urgency, hourly urination at night and some post-urinary dripping had developed. There had been no chills or fever. During the past four months, the patient had lost about fifteen pounds of weight although his appetite had remained good. System review revealed occasional supraorbital headache relieved by aspirin, mild discomfort in the left groin due to an inguinal hernia of many years' duration, and rather typical epileptic seizures developing in the past five years and well controlled under therapy. There had been no operative procedures, other serious illnesses or significant injuries.

Examination revealed an elderly, pale, afebrile white man lying in bed in no acute discomfort. Positive physical findings were an abdominal mass, a reducible left indirect inguinal hernia and prostatic enlargement to about one and one-half times normal size. The abdomen was enlarged to the right with an irregular, firm mass in the right upper quadrant which moved with respiration, was lobulated and not tender. No other masses were palpable. There was no ab-

*From the Department of Surgery and Pathology of Thayer Hospital.

dominal fluid or tenderness. The prostate was not tender or nodular and there was no evidence of fixation of the gland. Temperature was 98.4°F., the pulse was 72, respirations 26, and blood pressure 130/90.

The red blood count was 3.53 million, hemoglobin 71 per cent, white blood count 8,200 and the differential count normal. The urine showed a specific gravity of 1.015, three plus albumin, many white cells in the sediment and no red cells at any time during his hospital stay. The nonprotein-nitrogen was 27 milligrams per 100 cubic centimeters. Examination of sputum, urine and stomach contents revealed no acid-fast organisms. The stools showed occult blood on two occasions but became negative on a meat-free diet. Hinton was negative.

Chest X-ray showed slight deviation of the trachea to the left with fibrosis of a portion of the left upper lobe which was considered to represent an area of healed tuberculosis. An intravenous pyelogram showed the right side of the abdominal mass to extend below the crest of the ilium and to merge with the liver shadow. There was no excretion of dye by the right kidney. The shadow of the left kidney suggested a mildly hypertrophic organ. There was scoliosis of the lumbar spine and marked osteoarthritic changes. At cystoscopy the only finding was trabeculation of the urinary bladder plus some detritus appearing at the right ureteral orifice. The ureteral catheter met obstruction 10 cm. along the right ureter and nothing could be aspirated from the right side. The right ureter was pushed medially, apparently by a large kidney. Only a very small amount of Diodrast passed into the right renal pelvis which showed no diagnostic outline. The left kidney showed good function.

Thus, we were presented with a patient with a history of repeated urinary bleeding, a large mass in the right side of the abdomen, a secondary type of anemia, white blood cells in the urine sediment and cystoscopic and X-ray evidence of non-functioning right kidney. These findings were not consistent with essential hematuria and there was no evidence of the generalized diseases which may cause urinary bleeding, such as scurvy, malaria, purpura or leukemia. There was no evidence of acute nephritis and there had been no episode suggestive of renal infarction. There was no suggestion of any of the toxic causes of hematuria and the extra-renal urinary passages showed only trabeculation of the bladder, adequately explained on the basis of an enlarged prostate. Therefore, the most likely diagnoses were pyelonephritis, tuberculosis of the kidney, infected hydronephrosis or possibly neoplasm. In the absence of any bleeding during the hospital stay a diagnosis of neoplasm could not be supported, so that a working diagnosis of infected hydronephrosis, probably due to an unvisualized stone, was made.

Nephrectomy was easily accomplished under general anesthesia through a flank incision and a kidney 20 x 14 x 10 cm., showing marked lobulation, together with the proximal 10 cm. of ureter was removed. The patient was transfused with whole blood during the operative procedure. He was discharged from the hospital on the tenth postoperative day, following an uneventful postoperative course.

Gross examination of the kidney showed a large organ markedly irregular in outline and externally giving the impression of fluctuation. Section of the kidney revealed a thin cortex averaging 5 mm. in thickness in the upper half and approximately 1 to 1.5 cm. in the lower pole. The calyces were markedly distended and filled with thick, gray-white, cloudy material. The lining of the pelvis and most of the calyces was replaced by a large, friable, papillary mass, the main portion of which measured 7 cm. in diameter and was attached to the lower portion of the renal pelvis beginning sharply at the uretero-pelvic junction and extending along the renal pelvis to involve its entire mucosa and spreading into the mucosa of the calyces. In addition to the major mass of tumor, the papillary type of growth extended in shallow fashion along the mucosa of the pelvis and calyces to involve almost its entire surface. This mass was friable and bits of papillary processes separated from the main mass under gentle handling. Microscopic examination of this lesion showed characteristic papillary structures composed almost entirely of transitional type epithelial cells based on an extremely scanty fibrous stroma. The degree of differentiation was good and mitotic activity present, but minimal. The sections examined showed no definite invasion of the underlying renal tissue but in many areas the basement membrane had become irregular, faint, and in some areas, absent. The renal tissue itself showed a characteristic picture of hydronephrosis with markedly dilated collecting tubules and abundant interstitial fibrosis. The diagnosis was papillary carcinoma of the renal pelvis with secondary hydronephrosis.

Although no bleeding was demonstrated during this patient's hospital stay, the definite history of grossly recognizable blood in the urine provided a strong argument in favor of a diagnosis of neoplasm. In view of the more common occurrence of a renal cell carcinoma, it would be expected that this would be the working diagnosis. However, the X-ray and pyelography findings were not suggestive of such a lesion, merely suggesting ureteral obstruction. Painless obstruction of the ureter or uretero-pelvic junction is more commonly due to neoplasm or a specific infection than to a stone. It is thus seen that the over-all picture as obtained preoperatively was consistent with, and suggestive of, the type of tumor actually found, and that an accurate diagnosis should have been possible.

# PURPURA — CASE REPORT*

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This case of purpura is presented because its diagnostic work-up involved the study of hypoprothrombinemia. A clinical appreciation of the complexities of this problem is developed by an attempt to explain the cause of hypoprothrombinemia before autopsy.

M. W., a thirty-five-year-old housewife, was admitted to Thayer Hospital for diagnosis, November 18, 1949, with a chief complaint of bruising.

*Present Illness:* Following a normal delivery fourteen months ago, there was severe vaginal bleeding eight days postpartum. This stopped spontaneously in a few days. Since then menses had been at regular intervals with slightly increased flow. She tired easily and slight pallor was noticed two months ago. Two and one-half weeks ago she developed lameness in the right arm, soreness throughout her chest and back, and nausea. She consulted her doctor who found an anemia and prescribed liver and iron. Three to four days later spontaneous bruises appeared and the inner end of her left clavicle became swollen and tender.

*Physcial Examination:* Examination revealed a thin, pale, ill-appearing woman. Small and large ecchymoses were scattered over the extremities. When upper bridgework was removed, the gums bled and petechiae were seen on the palatal mucosa. The left sternoclavicular junction was swollen and exquisitely tender. There was a grade two, apical blowing systolic murmur. The spleen descended one finger, the liver two fingers, on inspiration. Edges were smooth, soft and non-tender. An irregular, firm, tender mass was found in the left lower quadrant extending to the midline and about five centimeters above the pubis. Pelvic examination revealed a hard, nodular, tender, movable mass in the left vault, pushing the uterus posteriorly. The temperature was 99.6°, the pulse 100 and the respirations 36. The blood pressure was 108/60. A tourniquet test for capillary fragility was slightly positive.

*Laboratory Work:* Examination of the blood revealed a red blood count of 2,350,000, hemoglobin of 5.5 grams, white blood count of 10,200 with a differential of 48% polys, 19% stab forms, 17% juvenile polys, 3% eosinophils, 21% lymphocytes and 2% monocytes. There was an occasional normoblast and many reticulocytes. The red blood cells were microcytic and hypochromic. Urine was normal with specific gravity of 1.023. The bleeding time was three minutes, clotting time was six minutes and there was good clot retraction in one hour. A prothrombin time showed 20% activity. Total bilirubin was 2.7 mgs. % with direct bilirubin 1.9 and indirect 0.8 mgs. %. The total protein was 6.8 grams per cent with 4.7 grams per cent albumin and 2.1 grams per cent globulin. A cephalin cholesterol flocculation test was negative after forty-eight hours. Stools showed a four plus test for occult blood. A vertebral bone marrow aspiration revealed marked erythropoiesis. Megakaryocytes were plentiful without evidence of platelet formation. The platelet count was 264,000. Three blood cultures were sterile.

X-ray of the left sternoclavicular joint was at first felt to reveal pathological fracture but films were repeated and it was felt that there was no evidence of fracture of the sternal end of the left clavicle and that the joint swelling was consistent with an hemarthrosis. X-rays of the chest, skull, long bones and spine were within normal limits.

*Hospital Course and Therapy:* The first two days following admission she received 1000 cc. of whole blood and 256 mgs. of vitamin K intravenously. On the fourth hospital day, an apparently normal menstrual period began and from that time on she flowed severely and passed large clots frequently. Daily transfusions up to 1000 cc. or more and vitamin K, 300 mgs. or more, plus the use of estrogens intramuscularly were unsuccessful in stopping the vaginal flow. On the tenth hospital day operation was performed by Dr. K. W. Sewall and a large left ovarian tumor with a small uterus and the right ovary and tube were removed. The liver and spleen were soft and enlarged. There was no evidence of metastases in the liver or in the pelvic or lower abdominal lymph nodes. Hemorrhage had not been excessive during the operation and throughout that day she received a total of 4500 cc. of blood.

*Pathologic Examination of Surgical Specimen:*

The surgical specimen consisted of the uterus with both tubes and ovaries. The left ovary measured 8 cm. in diameter and was completely replaced by masses of firm, yellow-white tissue forming nodules in which areas of hemorrhage and necrosis were plainly visible. In general the tumor was dense and hard. The opposite ovary showed nodular masses of similar tissue varying in size from 4 to 20 mm. in diameter and enclosing a cystic space 5 cm. in diameter. The tubes were normal. The uterus showed a smooth, velvety endometrium 2 to 3 mm. in thickness. Microscopically, the tumor in either ovary showed a background of relatively mature fibroblasts scattered through which were nests of irregular anaplastic cells

* From the Department of Medicine and Pathology of Thayer Hospital.

of varying shapes. Some of these were giant cells composed of a large amount of cytoplasm and several nuclei. Others were small and somewhat resembled a cross-section of a fibroblast in outline. Although the greater portion of this mass was entirely consistent with a fibrosarcoma, consultation with several pathologists yielded the impression that this actually represented a malignant mixed tumor of the ovary.

Following operation the vaginal flow decreased markedly but purpura and melena continued. The anemia persisted in spite of daily transfusions. The prothrombin time remained at the 20% level. Platelets were diminished in peripheral smear and repeat platelet count on the thirteenth hospital day was 13,400. At this time the tourniquet test was strongly positive and there was poor clot retraction.

On the sixteenth hospital day a repeat bone marrow aspiration of the dorsal spine was done. It was difficult to aspirate any marrow. Finally, with a great deal of suction, a few drops of bloody material were obtained which showed a few scattered cells of bone marrow and small groups of what seemed to be tissue cells.

On the twenty-fifth hospital day a left hemiplegia developed and she expired twelve hours later.

*Special Studies:* Serum and plasma were sent to the Rh laboratory at the Boston City Hospital and were examined by Doctors William Moloney and William Harrington for prothrombin activators and accelerators. Their findings indicated normal amounts of activators and accelerators and they felt that decreased prothrombin activity was due to deficiency in prothrombin content itself.

*Autopsy Findings:*

Autopsy revealed a large hematoma of the anterior abdominal wall in the region of the operative wound and a large retroperitoneal hematoma. Nodules of tumor were grossly visible in the mesentery, the paraaortic lymph nodes, and in the vertebrae. The vertebral marrow was almost completely replaced by soft, white neoplastic tissue. The liver was enlarged, weighing approximately 2200 grams. It was soft, but showed no gross evidence of metastatic disease. The spleen was also enlarged, weighing approximately 300 grams. It was soft, purple-red and engorged with blood. A mass of tumor destroyed the medial end of the left clavicle. No other gross distinguishing characteristics were noted. Microscopically, the presence of tumor was confirmed in those organs in which it had been seen grossly and, in addition to these, the lungs showed diffuse lymphatic spread of tumor with almost all of the perivascular lymphatics filled with nests of tumor cells. The sinusoids of the liver, likewise, showed diffuse involvement by isolated nests of tumor cells. The major characteristics of growth of these cells appeared to be the lack of cohesiveness and the tendency to spread by isolated cells somewhat in the manner of a lymphoma. Occasional multi-nucleated giant cells were present in the liver and lungs. Large numbers were noted in the bone marrow and in the lymph nodes. The spleen showed marked erythrophagocytosis and abundant deposition of hemosiderin throughout.

*Discussion of Case:* Purpura secondary to infectious hepatitis, infectious mononucleosis, or subacute bacterial endocarditis was quickly ruled out by appropriate studies. Adequate clot retraction, a normal bleeding time and a platelet count of 264,000 seemed to rule out a thrombocytopenic purpura on admission. Later an outright thrombocytopenic purpura developed. As a result of early hospital studies we were left with a purpura, a persistently low prothrombin time and a pelvic tumor. The removal of a malignant tumor of the ovary and the finding of metastases to bone marrow by aspiration method established the relationship of the tumor to the developing thrombocytopenic purpura. The persistently long prothrombin time remained unsolved. Cases of idiopathic hypoprothrombinemia are rare. Prothrombin is a very stable material. Blood loss and/or liver anoxia would not account for the persistent low prothrombin time.

Prothrombin determinations were made by the one stage method of Quick. This test has severe limitations. A fibrinogenemic blood will give a prolonged prothrombin time. We tested our patient's plasma for fibrinogen and found it present. As plasma ages, its prothrombin time increases and yet its prothrombin content remains normal. The prolongation of prothrombin time is due to deterioration of a labile factor which is necessary for conversion of prothrombin to thrombin. No clinical case of deficiency of this factor has yet been described. Seegers, Owren, Quick, Fantl and Nance have found other substances which accelerate or activate the conversion of prothrombin to thrombin. Hemorrhagic episodes and hypoprothrombinemia, due to deficiency of factor V of Owren and of prothrombin A of Quick, have been described. Plasma normally contains an antithrombin which can inactivate appreciable amounts of thrombin. The bleeding episodes in leukemias and lymphomas may be due to an increase in circulating anticoagulants. It is possible that other tumors may produce circulating anticoagulants. Portions of the tumor and uterus from this patient were frozen immediately after operation and sent under refrigeration to Doctors William Moloney and William Harrington at the Rh laboratory, Boston City Hospital, to be tested for the presence of an anticoagulant. Unfortunately, the material was not satisfactory for study following a postal delay. Serum and plasma from the patient were tested by these same physicians for prothrombin activators and accelerators and these were found to be present

in normal amounts. The deficiency in this patient appeared to be in the prothrombin content. The post mortem finding of liver sinusoids plugged with tumor cells probably accounts for this patient's lack of prothrombin.

*Final Diagnosis:*

1. Malignant mixed tumor of ovary with metastases to bone marrow, liver, lung, lymph nodes and clavicle.
2. Thrombocytopenic purpura, secondary to bone marrow invasion.
3. Hypoprothrombinemia, secondary to metastatic invasion of the liver.
4. Right cerebral hemorrhage.

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# THE PRESENT DAY PROGNOSIS IN IDIOPATHIC DETACHMENT (SEPARATION) OF THE RETINA, AND THE CAUSES OF FAILURE

Howard F. Hill, M. D., Waterville, Maine

As the time element is vitally important and delay in treatment rapidly reduces the favorable prognosis, it is imperative that patients having retinal detachment be referred as soon as possible to the ophthalmic surgeon. Surgical treatment of this condition should offer a good prognosis especially to the early case. Too frequently this is not recognized by the physician first seeing the patient. Often an incorrect diagnosis results in unfortunate delay. Several cases with a good chance for successful recovery have been seen by us who had been given a hopeless prognosis by the physician first seeing them.

Idiopathic detachment is really a misnomer as it is a separation between the primary layers of the retina but the term detachment is currently used in the literature.

The many theories of etiology will not be discussed in this paper. By idiopathic detachment we mean a primary disease of the retina which is characterized by certain degenerative changes in it, by the formation of tears or holes in the retina, and by the accumulation of fluid behind it. This condition is often aggravated by trauma and occasionally it may be the sole cause.

Usually the diagnosis is not difficult to one thoroughly familiar with the ophthalmoscope. The exceptions are those cases having a localized shallow detachment especially when located in the periphery.

The differential diagnosis from secondary detachment may require careful study. Detachments secondary to tumors are more solid looking, less tremulous and usually show shadows on routine transillumination. The statement of Lister (1924) that the presence of a retinal hole excludes a neoplasm has never been contradicted, with the one exception that Gifford[1] reported one case of choroidal tumor with a hole in 1936. Exudative detachments from hemorrhage or exudate in choroidal disease, nephritis, eclampsia, etc., are localized, more solid looking, and the diagnosis is aided by the associated clinical picture. When hemorrhage into the vitreous is found, retinal detachment may be present either as a cause or as a later result.

Retinal cysts have a smooth, globular appearance, little if any progression, and do not have a hole until rupture takes place. In these cases the exact diagnosis is not as urgent, as diathermic puncture causes the cyst to collapse and the ultimate prognosis is good.

The significant clinical symptoms of retinal detachment are:

1. The prodromal signs of "seeing spots before the eye" suggestive of degenerative changes in the vitreous or choroid. Chandler[2] stresses the sudden onset of showers of spots often preceding the detachment by several days or weeks.
2. Photopsia, sensation of flashes of light in a limited field area, flickering sensations, showers of colored sparks, all increased upon moving the eyeball.
3. An area of field defect often described by the patient as "a curtain" is present when the detachment has occurred. This corresponds to the area of the detached retina.
4. Reduction in vision, depending on the area of the retina involved, the extent of the detachment, its duration and the degenerative changes that accompany it.

## Prognosis

Although always grave, the prognosis in detachment of the retina has steadily improved with new methods of study and improved surgical technique. Gonin in 1923-25 was the first to bring real hope in the surgical treatment. Medical treatment of this condition according to Duke-Elder[3] has only 1 to 1,000 chance of recovery. The reported successes usually prove to be exudative detachments which do not show any holes. Surgical prognosis today should be excellent in 50 per cent of all cases and 75 to 80 per cent of favorable cases. In 1942, the prognosis in aphakic

eyes was reported by Burch[4] as only 8 per cent favorable. Today it is generally considered nearly as good as in the non-aphakic eye, if discovered early and if carefully studied in order to locate the peripheral holes that usually are present.

When the macula has been detached, even up to eight weeks, good vision may be regained but the optimum visual acuity is not reached until several weeks or months postoperatively.

In analyzing the results in any given group of cases, many factors have to be considered which effect the prognosis, these factors will be stressed under the causes of failure.

Surgery on cases with an obviously poor prognosis due to local pathological change is justified under the following conditions:

1. When the patient has only one eye and there is reasonable hope of improvement.
2. If we may expect to obtain good field vision, even though there are degenerative changes in the macula.
3. If the condition of the opposite eye indicates impending detachment, especially in the younger age group.

As to just what constitutes a successful result varies with each individual case. Complete reattachment with very poor central vision may be a good result if the eye is preserved with good field vision. The alternative would be further degeneration and blindness. In general, a perfect result is one that complete reattachment is obtained, without unnecessary scarring, central vision permanently improved, and the field restored to better than before operation.

## Causes of Failure

*General Causes:*

1. Lack of general study of the patient in regard to systemic disease.
2. Mental inability of the patient to coöperate in the tedious postoperative period. It is most important to take the time necessary to explain the conditions of the convalescence and gain the patient's confidence before the operation. The occasional possibility of reoperation, if it becomes necessary, must be mentioned. If this is painstakingly handled, it is astounding how these patients do remain confident, cheerful and coöperative under a minimum of sedation.
3. Gastric disturbances, usually due to lack of a carefully regulated diet suited to the individual patient. We have found a completely meat and meat broth free diet prevents many patients from having abdominal discomfort. Also careful arm and leg exercises give considerable relief.

*Causes Associated With the Local Pathology:*

4. Lack of adequate preoperative study of the affected eye, with the patient prone in bed and with the pupil fully dilated.
5. Probably the most common mistake is failure to locate all retinal holes. The periphery must be searched repeatedly and examined with pressure on the globe over this area. This pressure brings to view the area that so often will show small peripheral holes and occasionally a disinsertion. In detachment of the lower part of the retina, failure to study carefully the upper retina when it appears normal will often result in missing the primary hole. This is especially true when there is a double balloon type of detachment, with a deep cleft between, which usually indicates a migration of the subretinal fluid downward with gravity. When a true primary lower detachment is found, a disinsertion must be looked for. It is well also to check the opposite eye for the presence of bilateral retinal cysts.
6. Length of time that the detachment has existed. Here the prognosis depends upon the extent of degenerative changes. One of our successful cases was operated on nine months after the initial onset, with resulting visual acuity of 6/15 and good field vision.
7. Extensive degenerative changes in the retina and vitreous.
8. Cystic degeneration of the macula resulting in varying degrees of poor central vision. Reese[5] in 1937 reported this to be the principle cause of the high percentage of cases with poor central vision in which the result was otherwise successful. This condition can be seen best with the red free illumination.
9. Hypotony has been reported by Dunnington[6] as giving a poor prognosis. Of seventeen cases operated upon with the tension below 10 Schiotz, he cites fifteen complete failures. Schepens[8] and Chandler[2] believe that not the hypotony but undiscovered peripheral holes in these cases are the causes of failure.
10. Aphakia or absence of lens. In aphakia the previous unfavorable prognosis of 5 to 8 per cent is now greatly improved with earlier recognition and more detailed study of the periphery of the retina. Postoperative cataract patients are less apt to notice peripheral field changes and should be warned to report any suspicious symptoms. Susceptible types of eyes such as in high myopia, those with fluid vitreous, those with posterior capsular cataracts in younger people, etc., should be watched closely during the postoperative period by the surgeon. If the patient is referred by an

ophthalmologist at considerable distance, that physician should be warned to watch these cases closely in order to detect a redetachment in its early state.

11. Areas of subretinal fluid walled off by adhesions or folds that require individual drainage. Carefully used suction with a specially made glass stemmed bulb will greatly facilitate drainage. An ordinary curved eye dropper with a wide flanged end can be used. MacDonald[9] cautions against squeezing an air bubble into the eye and under the retina.
12. Lack of good anesthesia. When not contraindicated, sodium pentothal is the anesthesia of choice.
13. Failure to reoperate when indicated, because of the long convalescence, is a serious mistake. Allen[7] and others report cases of final success after operating four times on the same eye.

The results of the last twenty-nine unselected cases of detached retina operated on at the Thayer Hospital include four cases operated within eight months. Although three of those are successful at the present time, the short postoperative period may not disclose the final result. However, these four are completely reattached with good vision and as they were early favorable cases, they are included in the series.

Of the twenty-nine cases, nineteen were successful, with improved central vision, improved fields and completely reattached. Of these nineteen cases, two were operated upon twice, and one case was operated on three times. Ten patients have normal central vision—all early cases. Only one has very poor central vision, hand movements, due to degenerative changes in the macula. Ten cases were complete failures.

Four detachments had very unfavorable prognosis due to marked degenerative changes and redetached early, with multiple holes.

Four cases refused reoperation, one of these having been operated twice. The chances of final success in these four cases was at least favorable. The redetachments were in new areas and were probably due to having missed some peripheral hole or holes. One of these redetachments occurred four years after the operation and involved only a small area.

One case was a boy of fourteen years with mental retardation, who was completely uncoöperative, getting out of bed several times and tearing off the bandages. No second operation was advised.

One of the earlier cases was in an aphakic eye which redetached in two weeks in a new area. Failure to locate all the peripheral holes was a probable cause. The patient had only one eye and failure to advise reoperation was poor surgical judgment, but this was eight years ago and the prognosis at that time was considered very poor.

In addition, in the past, we have failed to advise operation on several cases of detached retina in aphakia which today would be urged to have surgery.

In summarizing, we would like to stress the importance of early recognition of detachment of the retina so that surgical treatment will have a more favorable prognosis. The prognosis in favorable cases should be as high as 80 per cent. Also in cases with an unfavorable prognosis, surgery is not hopeless.

The causes of failure have been discussed with the view that many of these causes can be avoided with more careful preoperative study of the patient. The importance of locating all holes especially those in the periphery is stressed.

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## NEONATAL MORTALITY WITH REFERENCE TO ANOXIC INJURY

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In the past ten years in this hospital there have been 29 neonatal deaths out of 1521 deliveries. In retrospect it is not an easy task to determine from the records the cause of death in each individual case. In certain instances the cause was not often understood at the time and post-mortem findings were lacking which would have been of great help. In a very brief summary the causes of death were as follows:

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|---|---|
| Erythroblastosis fetalis | 1 |
| Meconium ileus, cecostomy, death on the 3rd day | 1 |
| Hemorrhagic disease with gastro-intestinal bleeding | 1 |

| | |
|---|---|
| Myelomeningocele | 1 |
| Multiple congenital deformities centering about mouth and pharynx | 1 |
| Marfan's syndrome with intussusception on 2nd day | 1 |
| Intracranial hemorrhage | 4 |
| Pulmonary atelectasis, congenital (confirmed by post-mortem) | 1 |
| Pulmonary atelectasis due to aspiration of contents of amniotic sac, mucus, or blood | 8 |
| Undetermined (all premature infants) | 10 |

Many of these deaths were not preventable, while others may have been with more careful diagnosis and with different post-natal care and treatment. I should like to discuss those cases which illustrate the immediate problems of the newborn infant. Many of these are self-evident and often of such routine importance that one fails to appreciate them. However, they do jeopardize the infant and are in the main preventable.

Nearly fifty per cent of all these deaths were due to anoxic injury. Although it is impossible to get any accurate figures from our records, Clifford[1] states that at least as high a proportion of neonatal morbidity results from the same cause. The diagnosis of asphyxia is not a difficult one but determining the cause of the asphyxia presents more of a problem. It is important to recognize the problem and proceed at once to relieve the hypoxia. One must appreciate that the condition of an asphyxiated newborn infant is never static. His condition immediately improves with treatment or with the persistence of the hypoxia irreversible pathologic changes take place for which no treatment is effective.

Respiration depends upon an intact anatomic and physiologic system. If the centers controlling respiration have been damaged by anoxia in utero or during delivery, or by trauma during birth, an asphyxiated newborn infant results. Drugs used to induce labor and maternal analgesia or anesthesia may produce a similar result.

Anoxic injury as a result of trauma during labor or delivery was directly the cause of death of four infants with intracranial hemorrhage. It is possible that there were others in the group in whom the cause of death was undetermined, all of these infants being premature. In three of the former group, all prematures, autopsy findings revealed sub-tentorial hemorrhages sufficient to damage the respiratory center and to depress the vital medullary centers. In the fourth case this may have resulted from excessive uterine contractions due possibly to over-stimulation from pitocin.

This infant evidenced the signs of asphyxia and lumbar puncture revealed bloody fluid. The infant improved somewhat following spinal puncture but died before an additional tap could be done to relieve increasing pressure.

Asphyxia in itself can produce petechial or even larger hemorrhages into the brain substance, or bleeding into the subarachnoid space may have been coupled with an anoxic factor. If one sees a newborn infant with any variety of cerebral symptoms, a lumbar puncture is both diagnostic and therapeutic. One should not wait for a bulging anterior fontanel before suspecting intracranial pathology. If there has been mild anoxia producing congestion and edema, clear fluid is obtained in excessive amounts under pressure. If the anoxia has produced bleeding in small amounts, xanthrochromic fluid or microscopic blood in small quantities may be found. In any case a small amount of fluid (10-15 cc.) is slowly removed which relieves the intracranial tension and may thwart further damage and possible hydrocephalus. There are many who believe that one should do bilateral subdural taps diagnostically in any infant with cerebral symptoms at birth.

In addition to the potential hazards during labor and at the time of delivery extrauterine anoxia can be produced by the various forms of congenital heart disease, malfunction of the circulatory system, congenital defects of the respiratory tract and finally mechanical obstruction at any point in the respiratory tract due to aspiration of amniotic fluid, mucus, or blood.

In one case, confirmed by autopsy, there was congenital pulmonary atelectasis. The elastic tissue and the smooth muscle of the pulmonary parenchyma together with the normal cohesion of moist surfaces in the fetal lungs resist the distention of the newborn lung. If, as in this case, there has been failure of primary expansion in the absence of other factors hindering the initial respiratory effort, the problem is a difficult one. Wilson and Farber[2] showed that the newborn lung required negative pressures of 15-25 cm. and sometimes 35 cm. of water upon their surfaces before significant expansion took place. Such pressures are above the 12-15 cm. exerted by such an apparatus as the Drinker respirator. Then too, Smith[3] pointed out that emphysematous blebs in the few functioning alveoli began to develop at 19 cm. of pressure. If the lungs have never expanded, artificial respiration is useless and may be harmful. Wilson, Torrey, and Johnson[4] showed that oxygen under pressure was of no avail on the atelectatic lung.

With the imperative demand for oxygen this type of infant should be placed at once in an atmosphere of 50-60% oxygen. It has been shown that oxygen is absorbed through the skin, mucous membranes, including the stomach. Respiratory stimulants such as alphalobeline hydrochloride then my turn the trick. If any oxygen can reach the respiratory center this may be the spark which will allow the infant to expand sufficient lung parenchyma to forestall increasing hypoxia. Infants will survive with relatively little aerated pulmonary parenchyma. X-ray studies

have shown considerable portions of airless lung in the paravertebral and central portions in normal infants for as long as 7-10 days. Smith and Kaplan[5] showed, in a study of the increasing oxygenation of the infant's blood immediately after birth with simultaneous X-rays and measurement of arterial blood oxygen, that adequate pulmonary function does not necessitate complete expansion of all portions. One should appreciate the considerable of safety and keep the baby warm and in a high oxygen atmosphere giving symptomatic treatment as indicated.

Finally, there is a group of cases with pulmonary atelectasis due to aspiration of contents of the amniotic sac, mucus, or blood. This condition alone may not have been responsible for the anoxia which resulted in death. However, an infant depressed by maternal analgesia or anesthesia, or one who has suffered from intrauterine anoxia due to placental disease, is certainly the more likely one to aspirate. Unfortunately such information could not be gathered from the records. It may be interesting to note that of the 8 cases in this group, 4 who developed atelectasis were delivered by caesarean section. This of course is a proportionately significant percentage and indicates one of the primary dangers to an infant delivered by this method.

It has been observed[6] that infants delivered by caesarean section have a great deal more mucus than those delivered normally. It is assumed that in normal delivery through the birth canal, mucus is removed in some way from the trachea and oropharynx. Before the first inspiration and immediately thereafter, it is routine to milk any fluid out of the trachea and to apply gentle suction in the posterior pharynx.

Not only is there a significant amount in the oropharynx which can be aspirated, but as much as 20-30 cc. of mucus can be removed from the stomach of infants delivered by caesarean section. This latter observation constitutes a further hazard to the infant mildly asphyxiated with the maternal anesthesia. With reflexes somewhat depressed it becomes an easy thing to aspirate regurgitated stomach contents. Aspiration of stomach contents in these infants should be done to prevent pulmonary complications from regurgitated material.

Our mortality rate of infants delivered by caesarean section is in the vicinity of 5 per cent including stillborn infants. This figure does not recommend the procedure, for some of the deaths were preventable. It points to the significant dangers which exist for infants delivered by this method. All those with atelectasis breathed spontaneously at birth, only to suddenly develop respiratory distress and die. One must consider the excessive mucus in these cases and secretions per se in any delivery to forestall atelectasis. Once it has occurred, bronchoscopy is probably of little avail. House and Owens[7] performed bronchoscopic examinations on 23 patients (19 of them premature infants) with atelectasis who had not responded to conservative therapy. Some secretions were removed from the bronchial tree but in only one instance was a significant mucus plug recovered. This does not argue against the fact that bronchoscopy is often a life-saving measure. It may indicate the futility of the procedure in all but selected cases and it serves to point that prior to bronchoscopy all pathologic entities which may produce atelectasis other than aspirated fluids must be ruled out. Clifford[1] has outlined the following plan regarding direct tracheal or bronchial visualization and aspiration in the newborn period:

1. In Resuscitation
   - A. Vaginal deliveries

     In all types of asphyxia immediate, efficient, direct aspiration before respiration starts should be recommended, provided proper equipment and a trained operator are ready and waiting to perform this procedure.

     If this ideal set-up is lacking immediate postural drainage, suction of the nasal, oral and pharyngeal spaces and intratracheal suction with a catheter introduced under digital guidance in moderate or severe asphyxia should be instituted — all before respiration starts if possible. Once respiration has begun, tracheal and bronchial secretions have been drawn too keep into the lungs to be aspirated even by direct procedures.
   - B. In deliveries by caesarean section

     A properly equipped and trained operator should be part of every caesarean section team so that a direct tracheal aspiration may be performed on the infant the instant of birth.
2. In the Newborn Period
   - A. Diffuse atelectasis of the newborn cannot be helped by tracheal or bronchial drainage. Many years of autopsy observation showed no evidence that obstructive material was present that could have been removed by suction. The pathologic lesions are in the alveolar ducts, alveoli and pulmonary tissue.
   - B. Bronchoscopy examination by a consultant otolaryngologist is indicated when physical examination and roentgenograms reveal a localized obstruction.
   - C. Instant direct tracheal and bronchoscopic drainage is indicated in sudden asphyxia following an accident such as the aspiration of milk.

D. Direct examination by a consultant otolaryngologist is necessary when a developmental abnormality of the larynx, trachea, bronchi or lung is suspected.


### Summary

Neonatal mortalities in this hospital in the past ten years have been presented. There has been particular discussion of the deaths due to anoxic injury with reference to improved diagnosis and treatment.



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## THE TREATMENT OF CEREBRAL VASCULAR ACCIDENTS

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Every physician in practice knows the sense of impotence one has when confronted with a cerebral vascular accident. The conclusions drawn by physiologists and anatomists that the cerebral vessels act as end organs, have no collaterals, and that these vessels are resistant to autonomic nervous system impulses led to the hopeless attitude of the clinician. In recent years the work of many men has shown that cerebral vessels do respond to sympathetic nerve interruption. Collateral circulation has been seen about cerebral infarcts produced experimentally. If this be so, then there is no reason why a cerebral vascular accident shouldn't be considered a peripheral vascular accident and treated as such.

Stellate ganglion blocks have shown promise in the treatment of cerebral thrombosis and emboli. Heparin and dicumarol are receiving a trial in these disorders. At the hospital we have a team for the treatment of cerebral vascular accidents, consisting of an anesthesiologist, a surgeon, a radiologist, and an internist. As soon as a patient with a cerebral vascular accident has been admitted to the hospital, the internist does a brief cardiovascular and a neurological examination plus a lumbar puncture. In the majority of cases, he can clearly distinguish the etiology of the accident as a hemorrhage, thrombosis or embolus using the criteria described by Aring and Merritt. There are, however, cases in which the usual criteria fail. Cerebral arteriography provides a safe method for differentiation between cerebral hemorrhage and thrombosis and also leads to accurate localization of the lesion. In this diagnostic procedure, the surgeon is necessary for injection of the common carotid artery with radiopaque material, and the radiologist for the taking of and the interpretation of the films.

If the diagnosis of hemorrhage is made, then trephinement of the hemotoma is indicated. If a thrombosis or an embolus is the diagnosis, then the anesthetist does a stellate ganglion block with novocaine. If the patient shows improvement after stellate ganglion block, these are repeated at daily intervals until further improvement stops. The patient is placed in an oxygen tent and is given heparin, 50 mgmas. intravenously every four hours. Dicumarol, 300 mgms. by mouth (by tube if necessary), is started at the same time and both are continued in usual fashion until the prothrombin time is less than thirty per cent. Heparin is then discontinued and dicumarol is employed to maintain the prothrombin time under thirty per cent. Papaverine, grains one-half, is given intravenously at the start of treatment and then grains one and one-half is given by mouth four times daily thereafter.

At the present time we are organizing and perfecting techniques. We hope to give a yearly report with comparison of treated and control cases. The techniques of stellate ganglion block and of cerebral arteriography are to be found in the bibliography. Internists are familiar with the use of heparin and dicumarol.


### Summary

Cerebral vascular accidents may be considered peripheral vascular accidents and treated as such. Skill in clinical and arteriographic diagnosis must be developed. Plan of treatment follows that set for emergency treatment of vascular occlusion as described by Allen of the Mayo Clinic. Our plan of treatment at the present time does not include cerebral hemorrhage. Addition of a neurosurgeon to the team would be desirable.



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# INFECTIOUS MONONUCLEOSIS — A BRIEF REVIEW

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Infectious mononucleosis, a disease until fairly recently considered to be benign, was first reported by a Vienese pediatrician, E. Pfeiffer,[1] in 1889. West[2] was the first to make mention of the disease in the United States by reporting an epidemic in 1896. In spite of these early reports, infectious mononucleosis, or glandular fever as it was more commonly known, was apparently not considered too seriously until early in the 20th century at which time Sprunt and Evans[3] in 1920 and Downey and McKinlay[4] in 1923 described the hematological features of the disease. It was in 1932 that Paul and Bunnell[5] discovered that the serum of patients who had developed infectious mononucleosis contained heterophile agglutinins, usually in high titer. The pathology of the disease has been described by Ziegler[6] in 1944, Allen and Kellner[7] in 1947, and Custer and Smith[8] in 1948.

Infectious mononucleosis is an acute infectious disease which may occur as epidemic or sporadic types. It is distinguished by a febrile course, lassitude, headache with blurring of vision and occasionally vertigo, anorexia, lymph node enlargement, sore throat, usually an enlarged spleen and occasionally an enlarged liver. The posterior cervical nodes are particularly involved which is an aid in differentiating this disease from septic sore throat where the superior cervical lymph nodes of the anterior chain are commonly enlarged. Stained blood smears may reveal the characteristic large mononuclear cells and the blood serum usually contains antibodies in high titers against sheep red blood cells. Although the exact etiology has not been determined, a virus is presumed to be the causative agent. The epidemic type of the disease is more prevalent during the winter months, especially in the spring, and its recognition is more prompt. The sporadic case, however, may go unrecognized and the patient may be considered to have a streptococcic sore throat or diphtheria.

Lymphadenopathy is more evident in the younger age groups, although any age group may develop any type of the disease. The angiose type of infectious mononucleosis is characterized by the development of patches of membrane or ulcerations over the lymphoid tissue in the pharynx and faucial bed. The membrane, which is a true membrane, is easily confused with that seen in diphtheria but it does not extend beyond the lymphoid elements as a rule. In spite of edema of the faucial area, the extremely sore throat, the high temperature and cervical adenopathy, the patient does not present a toxic appearance.

Initially there is usually a 2 to 3 week period of malaise, feverishness and chilly sensations, with gradually increasing sore throat and lymphadenopathy. On the other hand, fever may persist for a fairly long period of time and slight enlargement of the lymph nodes may appear late in the course of the illness. Isaacs[9] reported a series of 53 patients with what he considered to be chronic infectious mononucleosis. Easy fatigability, exhaustion, aching of the legs, weakness, depression and afternoon elevation of temperature were the symptoms most frequently elicited. Moderate splenomegaly was present and although the enlargement was not always felt by abdominal palpation, it was apparent on abdominal roentgenograms. In addition it was noted that many of the patients had low blood pressure, a low blood sugar, often low specific gravity of the urine, and the presence of infectious mononucleosis cells in the blood. The mononuclear cells were often confused with those of the monocytic series by not too discerning technicians.

Ordinarily the mononuclear cells become apparent at about the time of the lymphadenopathy and with their appearance the constitutional symptoms seemingly improve. In the severe types of the disease, a fairly high polymorphonuclear response has been noted with white blood counts ranging between 15-20,000 cells, 75% of which have been polymorphonuclear cells.[10] As the disease progresses, there is a shift to the mononuclear cell reaction.

The pathology of infectious mononucleosis has been described in an excellent paper by Custer and Smith.[8] Their extensive studies of tissues obtained by biopsy and from post mortem material revealed that perivascular infiltration of small and large lymphocytes in all tissues, with the exception of the bone marrow, represents the basic lesion. The liver may show a periportal lymphocytic infiltration which is considered to resemble the changes seen in cases of epidemic hepatitis of mild degree. With or without jaundice, the liver function tests, particularly the thymol turbidity, cephalin-cholesterol flocculation, and bromsulfalein excretion tests usually reflect significant parenchymal involvement. In addition to the agglutination tests described by Paul and Bunnell, a rapid slide technique has been devised by Moloney and Malzone[11] which offers a practical screening test.

The fact that nearly all tissues are involved explains the protean nature of infectious mononucleosis. Initially the patients may develop a transitory morbilliform rash which is not unlike that seen in measles. Purpuric spots herald the development of thrombocytopenia with hemorrhagic purpura. Ashworth and Motto[12] presented a case which demonstrated bilateral papilledema in association with other clinical findings which were characteristic of infectious

mononucleosis. It has been noted that infectious mononucleosis may be confused with undulant fever.[13]

The writer has been impressed with the number of patients who reveal Widal titers as high as 1-640 dilution with both the O and H antigens. Interstitial pneumonia has been reported as a feature of the disease and is said to be indistinguishable from the interstitial changes of atypical pneumonia.[8] The cause of death in one reported case was found to be edema of the glottis.[8] Cardiac arrhythmias, tachycardia, myocarditis and heart block have been observed. Evans and Graybiel[14] have discussed the electrocardiographic changes in four cases of infectious mononucleosis. They observed T wave changes which they considered to represent pericardial involvement. We have had a case of infectious mononucleosis showing similar electrocardiographic changes.

Jaundice is not uncommon during the course of the disease. It is well to carry out liver function studies in all cases of infectious mononucleosis even without jaundice so that patients may not resume normal activity with an impaired liver. Albuminuria, leukocytes, and red blood cells in the urine reflect a transient interstitial nephritis. Once an enlarged spleen has been recognized by palpation, too frequent or vigorous abdominal palpations over the splenic area should be avoided in order to obviate rupture of a distended spleen which may occur as a result of the trauma.

The neurological symptoms of infectious mononucleosis may be quite varied. Stupor, coma, delirium, and convulsions have been observed, as well as paresthesias, motor paralyses and depression of the respiratory center. The disease may resemble encephalitis, lymphocytic choreomeningitis and the Guillain-Barre' syndrome.[15, 16] Silberstein et al.[17] demonstrated significant antibody titer in the cerebrospinal fluid by employing large volumes of spinal fluid and dilute sheep red blood cell suspensions as antigen. Lyons and Harrison,[18] on the other hand were impressed with the absence of heterophile reaction in the cerebrospinal fluid in those cases studied by them.

The treatment of infectious mononucleosis has not been too satisfactory to date, although gamma globulin has been used successfully in fourteen cases by Bower, Affeldt, and West.[19] Human gamma globulin was administered intramuscularily in four to eight ml doses. It was found that one dose was usually sufficient to produce a satisfactory response within twenty-four to seventy-two hours. Penicillin may be used to control the secondary invaders. Isaacs[9] recommends the use of adrenal cortical extract in the chronic stages of the disease. Two tablets of cortalex are to be given on arising every morning for three weeks. If evidence of liver involvement can be demonstrated to any appreciable degree the course of therapy should be similar to that which has been previously outlined for acute infectious hepatitis; namely, bed rest and diet. The resumption of full activity should be dependent upon liver function tests and possibly exercise tolerance. Whether or not the newer antibiotics will appreciably alter the course of the disease cannot be determined at this time.

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## Addenda

Hoode and Dundberg[1] have recently described granulomatous lesions in the bone marrow in infectious mononucleosis.

# ALLERGY OF THE MIDDLE EAR

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In chronic or recurrent otitis media the possibility of an allergic basis should be considered in the etiological differential diagnosis. This is particularly important in the absence of more obvious etiological factors such as nasopharyngeal lymphoid hyperplasia, chronic sinusitis, evidence of definite pathological changes in the mastoid indicating osseous involvement, or the presence of a cholesteatoma. When the aural discharge is thin and mucoid and examination reveals a central perforation of the membrane tympanic, especially if in the region of the tympanic opening of the eustachian tube, an allergic disturbance becomes an increasing possibility. This type of chronic otitis media usually is of nasopharyngeal origin, and nasal allergy is often overlooked.

Examination and history may reveal other manifestations of allergic disease, or the patient may have an atopic family background. At the same time these findings may be lacking and not be elicited despite careful questioning, so that an allergic otitis media may seem to occur as an isolated clinical phenomenon, the diagnosis being made solely by observation of the discharging ear.

The mechanism, at least hypothetically, is not difficult to explain. Allergic congestion of other tissues in the upper respiratory tract is common enough; even such a localized lesion as hydrops of the labyrinth is considered by some as having an allergic basis. If these concepts are extended to include localized edema of the middle ear, the eustachian tube, the nasopharynx with obstruction of the torus of the tube, then the clinical picture of an allergic otitis media could result.

Once the diagnosis is suspected, confirmatory evidence must be found. Even in an atopic individual, in the presence of an allergic rhinitis, it is difficult to establish such a diagnosis; since direct extension of infection from the nasopharynx by means of the eustachian tube is unquestionably the usual process. The most diagnostic finding is the presence of eosinophiles in a cytologic study of the aural discharge, or in direct smear from the nasopharynx, or from the torus of the eustachian tube, or from the nasal cavities. It is granted that eosinophiles may be found in any chronic discharge or necrotic tissue. Nevertheless, when eosinophiles are found in significant numbers, in a thin mucoid aural discharge, in a patient without evidence of bone necrosis, it seems fair to presume an allergic etiology. The fact that many cases of obscure etiology have been approached from this viewpoint, and a definite hypersensitivity never demonstrated, may be only an indication of the allergists' limitations, rather than evidence that allergy is not the basis.

The criterion for making a diagnosis of allergic otitis media, according to Hansel,[1] depends on the finding of a preponderance of eosinophiles in the aural discharge. While certainly suggestive, it seems to us that this alone is inadequate. The criterion we have set is that the discharging middle ear, in addition to showing eosinophiles, will flare up on exposure to adequate quantities of offending allergens, and subside when these offenders are avoided. This would seem to meet the demands of good diagnostic criteria.

Two cases have recently been encountered which seem to fit in the category of primary allergic otitis media. Case No. 1 is a 17-year-old girl, E. W. She has had an intermittently discharging ear since the age of 4, following scarlet fever. One year later, she had a tonsillectomy and adenoidectomy. Nine years later, she had a simple mastoidectomy, a bilateral intranasal antrostomy, and a second adenoidectomy. The ear became dry and remained so most of the time except for certain periods, some of which followed colds and others seemingly had no such basis. Two years ago, allergy was suspected and a nasal smear revealed eosinophiles. At the same time a smear of the aural discharge was almost purely eosinophilic. Skin tests were done and positive reactions obtained to several foods. The family could see no correlation between the ear trouble and the interdicted foods; the diet was not observed; and the discharge persisted. Recently, on again finding eosinophiles in the nasal and aural discharges, skin tests were repeated and similar results obtained. Of the suspected foods, chocolate was the only one regularly eaten. At a time when the ear was almost dry, the patient was told to eat large quantities of chocolate. There was an immediate severe flare-up. On a strict avoidance regime for the past six months the ear has remained dry.

Case No. 2 is a 45-year-old female, E. H. At the age of 15, she had a mastoidectomy, which has been followed by an aural discharge ever since. When first seen six months ago, she had a typical thin mucoid discharge from the ear. There was no evidence of bony necrosis. Examination of the nose, nasopharynx and pharynx was essentially negative. Nasal smear was negative. A routine smear of the aural discharge showed eosinophiles. Skin tests were done with no significant findings. A detailed dietary history revealed that the patient was very fond of chocolate. At a time when the ear was dry and the nasal smear showed no eosinophiles she was told to eat chocolate freely. Although the aural discharge did not recur, nasal smears then showed an abundance of eosinophiles. These disappeared when chocolates were again avoided. Naturally we did not feel justified in en-

couraging prolonged and excessive diet in order to see if we could cause a recurrence of the middle ear discharge. To date, on an avoidance regime, the ear has remained dry.

### Discussion

These cases illustrate the occurrence of suspected allergic otitis media. On some occasions the first patient thought that the discharge accompanied a cold. Some of these colds undoubtedly were attacks of allergic rhinitis. The second patient considered that she was unusually free of colds. Frequently following a flare-up of the aural discharge, nasal symptoms were absent, and examination of the nose and throat were negative. On one occasion when the nose and throat examination was negative, the cytology of the aural discharge was predominantly eosinophilic. In the first case an exacerbation was induced by feeding large amounts of chocolate. In the second case, eosinophiles in the nasal smear consistently varied with the presence or absence of chocolate in the diet. In both cases the ears have remained dry on a strict avoidance regime.

### Summary

That otitis media may result secondarily to a nasal allergy is well recognized. Many such cases are overlooked. In cases presenting a thin mucoid discharge without evidence of boney necrosis, cytological examination may reveal surprising diagnostic evidence. This may be corroborated by skin tests and experience testing with suspected allergens.

There is also evidence that allergic otitis media can occur as a distinct clinical entity, in the presumed absence of either an allergic or infectious rhinitis. Two cases are discussed which strongly suggest this possibility. We feel that in both cases, attacks of otitis media have been due to food sensitivity, and subsequently have been controlled by elimination of offending foods.

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## COMPLICATIONS OF WHOLE BLOOD TRANSFUSION AND IMMEDIATE TREATMENT

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Much information has been gained during the past fifty years in the technique, preservation and administration of whole blood. With the discovery of blood groups in 1900 by Landsteiner, the introduction of anti-coagulants in 1914 and more recent work on the Rh factor, the risk of transfusion therapy has been steadily decreasing. When we consider the present clinical aspects of blood administration, the relative infrequency of serious consequences may lead the physician to consider it an innocuous procedure. Even today, however, transfusions are attended by a very real morbidity and a definite mortality. Blood transfusion in the past has proved fatal in 0.14% of the cases. This figure is more significant when it is realized that it approximates that mortality which follows the surgical treatment of uncomplicated acute appendicitis. Yet, considerably more time and thought is commonly devoted to advising operation in appendicitis than is ever employed in considering transfusion. The procedure can be justified only when the blood is carefully administered to a patient in whom the inherent dangers are overshadowed by the expected benefits. Until it has been shown that blood transfusions carry no risk to the patient, they should be administered only when a real indication exists. As long as this condition has not been fulfilled it appears advisable to consider some of the pitfalls of blood transfusion therapy.

I *Pyrogenic Reaction*

Of the immediate reactions, the pyrogenic type is by far the most common. The carbohydrate products of certain non-pathogenic bacteria manifest themselves clinically by chills and fever, appearing usually within a few minutes to an hour after transfusion. The reaction usually persists for less than 4 hours and complete recovery is seen in 24 hours. Of interest is the fact that this type of reaction seldom occurs when the patient is under a general anesthetic. Pyrogenic reactions must be differentiated from febrile manifestations of the primary disease and from hemolytic reactions. The latter are excluded by the lack of free hemoglobin and bilirubin in the recipient's serum. The treatment of the above is mainly symptomatic. The judicious use of morphine acts as an aid in allaying the patient's general discomfort. The intravenous injection of 10 cc. of 10% solution of calcium gluconate is also beneficial. Of course the infusion should be discontinued immediately if still in progress.

II *Allergic Reaction*

Urticaria presents itself as the second most common complication of blood transfusion. During, or soon after the transfusion, the hives appear, usually localized. In more severe cases, angioneurotic edema may also be seen. Treatment consists of the sub-

cutaneous injection of 0.3 cc. of a 1:1000 solution of epinephrine hydrochloride and the intravenous administration of benadryl, 50 mgs. The only serious aspect of this type of reaction is edema of the glottis, but fortunately this is rare.

III *Circulatory Overload*

When the blood volume is excessively increased, the left heart may become dilated and subsequently fail. Pulmonary congestion and edema ensue and may be rapidly fatal if unheeded. In a given situation, a smaller amount of whole blood or plasma produces more overloading than is the case with crystalloid solutions, since the latter leave the circulation faster. The reaction as witnessed by the clinician appears during or within an hour after the transfusion. The patient may suddenly become extremely dyspneic, orthopneic and cyanotic. The cardiac rhythm is usually regular, but fibrillation or flutter may occur. Death may ensue rapidly, depending upon the extent of cardiac overload. Prompt recognition of the condition is mandatory, bearing in mind that severe asthmatic attacks may cloud the diagnosis. Tourniquets applied snugly to the proximal portions of the four extremities, in such a manner as to prevent venous return but not to occlude the arterial pulse, are most beneficial. This method will pool about 15% of the circulating blood in the extremities, thus removing an appreciable load from the heart. As soon as overload symptoms have been alleviated, the patient should be phlebotomized, to the extent of the approximate amount of blood which has been transfused. The patient should be observed carefully for several hours as pulmonary edema is likely to recur if the blood volume has not been sufficiently reduced. Again, the use of morphine may exert beneficial effects. Cardiac arrhythmias should be treated by the use of appropriate drugs.

In all transfusion therapy, it is wise to carefully evaluate the patient's cardiac function. Although prognosis in circulatory overload is very hopeful, if recognized and treated promptly, prophylaxis for this reaction is far more important. Patients with frank cardiovascular disorders should be administered blood sparingly and cautiously.

IV *Hemolytic Reaction*

The effect in an hemolytic reaction is due to the intravascular injection of excessive amounts of hemolyzed blood, whatever the cause may be. Certain elements from ruptured red cells are toxic when they occur in the circulation in sufficient amounts. At various times, this toxic element was thought to be either cellular debris or potassium from disrupted cells. It is now generally conceded that free hemoglobin is probably the toxic substance, 10 grams of free circulating hemoglobin, being sufficient to produce symptoms. Experimentally, hemoglobin solution injected intravenously has caused renal ischemia as well as precipitation in the renal tubules, in the presence of an acid urine. Hemoglobinuria, per se, appears to affect the normal kidney very little, but following renal damage, e.g., ischemia, hemoglobin precipitates in the tubules. This process is much more extensive in an acid urine.

The hemolytic reactions may be divided into two groups:

A. Extravascular hemolysis due to hemolysis of the donor's blood prior to administration. This may be due to:
   1. Freezing of donor blood causing rupture of the erythrocytes. The cell contents freeze at approximately 0.5° Centigrade. In the preservation of blood a range of 2-10° C, with an optimal of 6° C is thought best.
   2. Heating or over-warming of blood resulting in excessive hemolysis.
   3. The preservation of blood for too long a period. The time limits for blood usage depend upon the type of preservative used: e.g., with the A-C-D mixture, blood may be safely used up to twenty-one days and perhaps longer, depending upon the gross amount of hemolysis present.
   4. The addition of hyper or hypo-tonic solutions to blood, such as distilled water or 50% dextrose.
   5. Allowing refrigerated blood to stand at room temperature for several hours.

B. Intravascular hemolysis due to rupture of erythrocytes within the circulation of the recipient. The ruptured cells may be either the donor's or the recipient's. The principal source of hemolysis here is incompatibility. Many errors related to the grouping and cross-matching of the donor and recipient can occur. Even in the best laboratories an occasional mistake will be made in typing or grouping blood. However, if human blood grouping sera of high titer are used by well-trained personnel, these mistakes are very infrequent.

In emergencies it has been the practice to resort to Group O blood, the so-called universal donor type. However, we must exercise prudence if this is contemplated. Occasionally an individual is encountered in whom the anti-A agglutinins are of such a high titer that he should be classed as a dangerous universal donor. It appears to be safer in an emergency calling for immediate blood therapy to use Group O, Rh negative blood, adding the commercially available Witebsky substance to the above, in order to neutralize the anti-A, anti-B iso-agglutinins that might be present.

Within the past few years it has become necessary to determine the Rh factor of blood in order to avoid transfusion reactions in Rh negative recipients. There appear to be at least eight Rh blood types. $Rh_0$ factor is by far the most antigenic and therefore the most important clinically. About 15% of our race are $Rh_0$ negative.

The clinical signs and symptoms of hemolytic reactions to blood transfusion may be divided into (1) early and (2) late manifestations. In the early group, the patient usually experiences severe pain in the loins, lumbar region and down the legs. There may be a feeling of substernal constriction, which is quickly followed by chills and fever and frequently, labored respiratory movements. During this stage hypotension is very common and the blood pressure may actually reach shock levels, although the typical shock picture is lacking. It is interesting to note at this point, that these symptoms are masked if the patient is under a general anesthetic. The only sign which may warn the surgeon or anesthetist lies in the sudden increase of bleeding tendency. Where bleeding had been minimal previously during the operation, the sudden development of many small uncontrollable bleeding points may indicate a beginning hemolytic reaction. Some twelve hours after a transfusion in which hemolysis has occurred, the patient may become icteric. The jaundice may persist for several days, but little importance is attached to its presence.

While many patients who develop hemoglobinemia continue to secrete urine satisfactorily, a certain minority develop signs of renal insufficiency. Serious renal damage usually occurs in association with hemolysis of more than 200 cc. of blood. The daily urine volume may drop to between 0 cc. and 800 cc. At any time during the period of oliguria, spontaneous diuresis may occur and recovery follow. On the other hand the blood urea and creatinine may increase day by day, and if the patient does not respond to treatment, coma and finally death may occur between the 4th and 15th day following transfusion.

The diagnosis of hemolysis is easily made by the demonstration of hemoglobinemia or bilirubinemia soon after the transfusion has been given. If the post-transfusion plasma or serum appears red, it is sufficient evidence that the serum contains over 10 mgs. of free hemoglobin per 100 cc. The presence of hemoglobin in the urine is also positive evidence of hemolysis. It is commonly understood that should a patient manifest this or any type of reaction, thorough laboratory studies should immediately be instituted to determine the etiology.

There is no specific treatment. Once the free hemoglobin has been precipitated in the lower nephrons, the main objective lies in an attempt to increase the vascularization of the kidney. The following measures are of value:

1. Discontinuing the transfusion at the first suggestion of an untoward reaction.
2. Treating primary shock, if present, by the use of analeptics and compatible blood.
3. Replacing only that fluid actually lost, by such means as vomiting, defecation, sweating and the insensible perspiration loss. There is a natural tendency to give too much fluid in an effort to promote diuresis.
4. Alkalinization of the urine: There is experimental evidence to suggest that less renal damage occurs from hemoglobin when the urine is alkaline in reaction. The intravenous injection of 1000 cc. of molar lactate solution will usually produce an alkaline urine in an adult.
5. Diathermy of the kidney regions.
6. Induction of spinal anesthesia in an attempt to promote increased renal blood flow.
7. The slow injection of 0.1% to 0.2% procaine hydrochloride solution intravenously.
8. Kidney decapsulation, based on the theory that this may lessen the pressure on the renal tubules from interstitial edema.
9. Peritoneal irrigation, which temporarily utilizes the peritoneum as a membrane through which the products of nitrogen metabolism may be dialyzed until the kidneys regain their function.

These methods of treatment have had considerable application although the value of some is debatable, as probably 50%-75% of those who develop anuria or oliguria fail to recover. It is therefore evident that prophylaxis is much more valuable than treatment.

Embolic phenomena are improbable in the transfusion of blood by modern equipment. Air embolism, however, does occur. It has been estimated that at least 30 cc. of air can be injected into the vein of an adult without causing serious consequences, but during transfusion, this and even more can be accidentally injected into either donor or recipient. The symptoms here are mainly respiratory, as the volume of air becomes caught in the outlet of the right ventricle, thus blocking the flow of blood to the lungs and producing sudden anoxia. In the treatment of this emergency, it is believed advisable to place the patient so that he is lying on his left side. The air at the ventricular outlet thus floats upward, permitting passage of blood to the pulmonic circulation. The air remains in the ventricular chamber where it is churned into foam with the blood and subsequently expelled into the lungs in small amounts. Again, the value of this procedure is questionable.

Serum sickness, transfusion with grossly contaminated blood and exsanguination, fortunately are rare complications.

*Transmission of Disease*

Theoretically, many infections can be transmitted by blood transfusion. During the period of spirochetemia, syphilis may be transmitted by this method. The incubation period is one to four months after transfusion, with an average of 8-10 weeks. Probably the best preventative is the employment of preserved blood, as it has been shown that the spirochete does not survive refrigeration for over 2 days. It is of interest to note that the blood of a recently infected donor is most likely to transmit the organism before the serologic tests become positive. In one sense, therefore, Wasserman negative blood is more dangerous than positive.

Malaria frequently has been transmitted through transfusion. The clinical manifestations here appear in from 5-30 days following transfusion. The parasites survive storage in the refrigerator as long as the erythrocytes, so that blood preservation in this instance is no protection.

Infectious hepatitis also is transmissible by this method, although seen more commonly following plasma therapy. The incubation period here averages 56 to 134 days. It would seem advisable not to use any prospective donor who has had a positive diagnosis of either malaria or infectious hepatitis. No donor having had jaundice of undetermined etiology should be used until a two-year period has elapsed following recovery.

In theory, any viral, rickettsial or bacteremia-producing disease may be transmitted by whole blood transfusion. The prevention lies in the proper selection, examination and screening of donors.

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## EPISTAXIS

L. W. Pratt, M. D., Waterville, Maine

Epistaxis, one of the perennial problems encountered by the general practitioner, is most terrifying for the patient and in many instances presents difficulties for the physician. Fortunately, most nosebleeds stop spontaneously and oftentimes a physician is not consulted. A little pressure on the alae of the nose and a moderate amount of time are all that are required to stop most cases of bleeding. There is a more persistent group, however, which requires medical attention and which sometimes does not respond readily to therapy. It is this problem with which we are especially concerned.

It is of interest to examine a short and generalized list of the major causes of such bleeding. The types which we see most commonly are marked by asterisks.

1. Trauma—physical
   - *a. Fingernail
   - b. Noseblowing
   - c. External violence
2. Trauma—Chemical
   - a. Dichromate workers
   - b. Chemical workers
3. Systemic Disease
   - *a. Hypertension
   - b. Infectious Diseases
     1. Pneumonia
     2. Exanthemata
     3. Syphilis
     4. Tuberculosis
     5. Herpes
     6. Typhoid Fever
   - c. Blood Dyscrasias
   - d. Tumor—Malignant
     1. Lymphomata
     2. Carcinomata
4. Local Nasal Disease
   - *a. Colds—Influenza
   - b. Tumors—malignant and benign

The most commonly encountered nosebleed is epistaxis digitorum, caused by the repeated or rough application of the fingernail to Kiesselbach's area of the nasal septum. This most commonly responds well to the application of pressure to the alar cartilages, to a small tampon of adrenalin or hydrogen peroxide, or to electrocoagulation.

Bleeding is a common sequela of a nasal fracture and it may originate anywhere within the nose or sinuses. It is generally easy to control by pressure or packing. Many stop spontaneously. In any case of nasal fracture, as in any case of head injury, reduction of the fracture should be deferred until it has been definitely established that there is no cerebrospinal rhinorrhea or intracranial injury.

Chemical trauma produces an ulceration of the nasal mucosa over the cartilaginous septum which is best treated by removal of the patient from the atmosphere of chemical irritation and mild applications, such as sulfadiazine ointment, to the ulcer, with a view to reducing the secondary infection and allowing the normal healing processes to take place without interference. These ulcerations, if not controlled, may cause perforations of the quadrilateral cartilage, resulting in crusting and recurrent bleeding.

The bleeding produced by systemic disease is usually the most difficult to control. That of hypertension is apt to involve any area of the nasal membrane, but frequently affects the vessels in the posterior nares or in the nasopharynx. The difficulty, in these instances, is in accurately locating the bleeding point. It is purely a mechanical problem of reaching far back into the nose and packing, or electrocoagulating the point of bleeding. The bleeding point in these cases is often found behind a spur or deflection of the septum, under a turbinate, or in the wall of the nasopharynx.

Nasal hemorrhage due to blood dyscrasias is most difficult to control, as the vascularity of the entire nasal mucosa is involved. Any local manipulation is apt to result in more bleeding. Thus, this type of epistaxis is often best left alone if the severity of the bleeding is not too great. This same sort of capillary fragility is seen in many malignancies which produce a hemorrhagic diathesis.

Infectious diseases, especially the granulomatous types such as syphilis, may produce ulcerative lesions of the nasal membrane which may be temporarily controlled by cauterization and permanently cured by correction of the underlying pathology.

The common cold is often an etiologic factor. The friability of the edematous and inflamed mucous membrane, repeatedly traumatized by frequent noseblowing, is the basic cause. The bleeding varies from small flecks of blood in the nasal mucous to severe hemorrhage. Electrocoagulation of the offending point, or points, is the therapy of choice.

Either benign or malignant tumors of the nose, nasopharynx, or sinuses may produce nosebleed. These bleeding episodes are best controlled by electrocoagulation of the bleeding area, and/or removal of the tumor. One of the early signs of certain nasopharyngeal malignancies is the repeated occurrence of nosebleed.

If the bleeding originates within a sinus, such as the antrum of Highmore which is the chief offender, local treatment of the nose is of no help. The procedures of choice are either opening of the antrum and packing, or electrocoagulating the bleeding area, or ligation of the sphenopalatine artery through the transantral approach. This is necessary only in very rare instances.

Packing the nose is a procedure which should not be undertaken without due consideration of the possible complications. It is often difficult to pack a nose satisfactorily. It is uncomfortable to the patient to have it packed for a day or two and it is unpleasant to have the packing removed. A more grave situation however, is the likelihood of complications arising from this procedure. Blood may be forced into the sinuses or middle ears and unless the patient is fortunate and the packing is changed at least every 24 hours, suppuration of either the sinuses or the middle ears may supervene. Removal of the pack frequently starts the hemorrhage up again.

These complications are obviated in most cases by electrocoagulation of the bleeding point. This is a simple procedure which eliminates the necessity of packing, and thus circumvents most of the problems mentioned in connection with packing of the nose.

The technique of electrocoagulation is to first anesthetize the area with topical anesthesia, 10% cocaine and 1:1000 adrenalin in equal parts. The area is coagulated by application of the bipolar electric current with a long slim electrode, insulated throughout its length, except for the tip. The current is applied while under direct visualization of the operator either by head mirror or electric nasopharyngoscope. Only the offending spot is coagulated and recurrence is infrequent while recovery is rapid.

In the group of bizarre cases it is of interest to report a 22-year-old girl who had frequently recurring epistaxis from an ulcerated area high on the nasal septum, far back opposite the middle meatus. After repeated biopsy of this region, a section was found which clearly represented a salivary gland neoplasm, resulting from embryological enclavement of the tissue anlage.

## Summary

Accurate localization and electrocoagulation of a bleeding point is an ideal method of controlling nasal hemorrhage. This obviates the necessity of uncomfortable packing and the likely recurrence of such bleeding when the packing is removed. It eliminates the complications of sinusitis and otitis media incident to packing the nose, and the bleeding recurs less frequently than is the case with packing. Thus it is recommended that in cases of epistaxis difficult to control, the bleeding point be isolated and electrocoagulated.

# CLINICO-PATHOLOGICAL EXERCISE

## Case presented at Maine General Hospital, Portland, Maine

Edited by Joseph E. Porter, M. D.

This 69-year-old white male, a former road laborer, entered the hospital on April 23, 1948, complaining of swelling of his hands, feet, and legs, and "cracked voice."

Patient had been well until about 10 months prior to admission, at which time backache, thought to be due to excessive "stooping," caused him to stop work on the road, and turn to farming. This has persisted intermittently until time of admission.

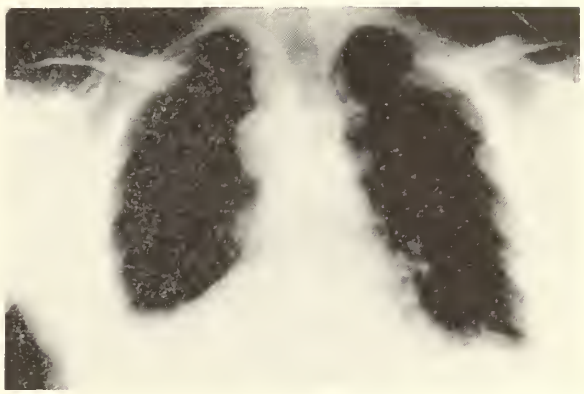
Eight months before admission he noted painless swelling and numbness of his right hand. His left hand was soon similarly involved, but to a lesser extent. Except for these symptoms, and for frequency and nocturia, he felt well. About six months before admission he developed a "cracked voice," which persisted to the time of admission.

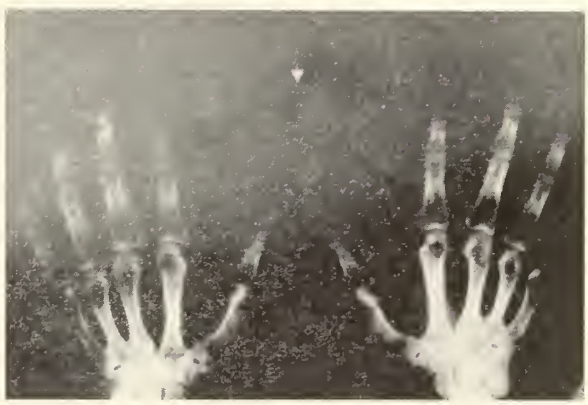
Three months before admission, feet and legs became swollen. Exertional dyspnea appeared, but the patient continued to sleep on two pillows as he had for years. As his illness was obviously becoming aggravated, he was brought to the hospital by his son.

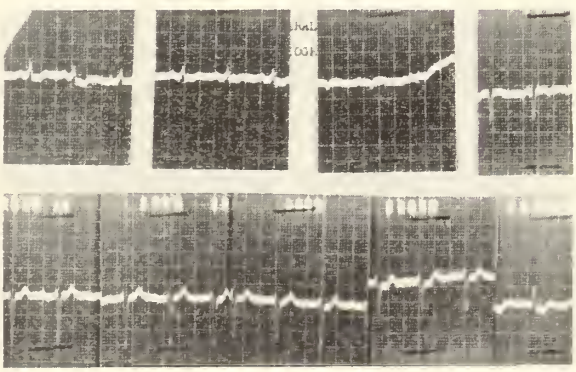
He had typhoid fever at age 20. He had been subject to frequent nosebleeds since childhood, last occurring about 9 months before admission. For three months before admission he had had a cough, productive of thick whitish phlegm without blood. For about the same period he had had constipation and anorexia. There had been no bloody or tarry stools, and no other gastrointestinal symptoms.

Family History showed that a sister of the patient had had "swollen hands" similar to his for years.

On admission, patient was an acutely ill elderly, poorly-nourished man, showing evidence of weight loss. He was dyspneic. Temperature was 98.6°: pulse 80, respirations 20; B.P. 92/82. The eyes showed irrgeular pupils, both myotic, the left somewhat larger than the right. The conjunctivae were injected. The tongue was beefy red and showed papillary atrophy. The pharynx was slightly injected. The neck showed venous engorgement. There were an unspecified number of submaxillary and submental lymph nodes, measuring up to 3 x 5 cm. and a few 1 x 1.5 cm. posterior cervical nodes, which were all discrete and non-tender. Chest was moderately emphysematous, and showed dullness and suppression of breath sounds at the right base, with a few subcrepitant rales in this area. P.M.I. of the heart was in the 5th interspace, 11 cm. to the left of midsternal line. There was a Grade II systolic apical murmur, blowing in type, transmitted towards the







axilla. Cardiac rate of 80 was equal to the radial pulse rate. In each axilla several discrete non-tender nodes were palpable. The abdomen was protuberant, and showed voluntary spasm. A tender liver edge was palpated with difficulty. Kidneys and spleen were not felt. In each inguinal region several discrete non-tender nodes were palpated. The right hand was swollen 1-1.5 times its normal size. This swelling did not pit on pressure. There was an area of hypoesthesia over the dorsum of the right hand. The left hand was involved in a similar but lesser swelling with no hypoesthesia associated. Fingernail beds were of poor color and pale. Lower extremities showed a 3 plus pitting edema of the legs and ankles; there was pitting presacral edema. Rectal examination was negative. A neurologic examination was negative except for slightly sluggish pupillary reaction on the right.

Blood count on admission revealed Hgb. 90%, and WBC. 4,850 with 53% polynuclear leukocytes, 35% lymphocytes, and 2% monocytes. Repeat count: Hgb. 79%, WBC. 8,100, 65% polys, 34% lymphocytes. B.U.N. was 21 mg.%, and 16 mg.% on a later determination. Blood sugar was 80 mg.%. Total protein on three different occasions was 5.5 gms.%, and 4.70 gm.%. Respectively there were 3.64 gm.% albumin and 1.61 gm.% globulin; 3.61 gm.% albumin and 2.34 gm.% globulin, and 3.16 gm.% albumin and 1.54 gm.% globulin. Serum cholesterol was 86 mg.%. Corrected sedimentation rate on two occasions was 3 and 7 m.m./hr. respectively.* Serum uric acid was 5.6 mg.%. Kahn and Hinton tests were negative. The patient's urine on admission showed a specific gravity of 1.022; there were 150 mg. of albumin and 8-10 WBC. Two other urine specimens showed specific gravities of 1.010 and 1.015 respectively, 100 and 150 mg. of albumin, and about 200 clumped WBC. A gastric analysis showed the presence of free acid. Thymol turbidity was 1 unit, and there was 16% retention of injected bromsulfalein. Prothrombin concentration was 100% of normal. Bleeding and clotting times were respectively 1 minute and 17 minutes with normal clot retraction.

Chest X-ray on admission revealed bilateral hydrothorax, "probably due to cardiac decompensation," and arteriosclerotic heart disease. Two weeks later, chest X-ray showed cardiac enlargement, with prominence of the left ventricle, bilateral hydrothorax, and a question of bilateral pulmonary congestion. Three weeks following this there were definitely increased vascular markings, extending out from both hilar regions, but only a small amount of fluid in both bases. EKG showed sinoauricular tachycardiac, low voltage of QRS complex in limb leads, a small R wave in the first 5 precordial leads, and digitalis effect. X-ray examination of the hands showed peculiar trabeculations of the shafts of the phalanges. The statement is made that this is seen in Boeck's sarcoid.

During the early part of his hospitalization the patient was afebrile and able to sit out of bed. By the 6th hospital day his voice was "more distinguishable," and his legs somewhat less edematous. Lymph nodes from the left axilla showed only atrophy on microscopic examination; nodes from the right axilla taken later showed a chronic inflammatory reaction. Mercuhydrin given to the patient early produced only slight to moderate diuresis. Digitalization, however, produced a considerable diuresis, and the patient's weight dropped from 192 to 156 lbs. in somewhat over 2 weeks. However, on the 17th hospital day the patient was slightly cyanotic, and his respirations were somewhat labored. These symptoms improved somewhat with the administration of oxygen, and after the removal of 800 c.c. of clear yellow fluid from the right pleural cavity. This fluid had a specific gravity of 1.013; culture was negative, and no tumor cells were seen. Following this procedure the patient's temperature rose to 104° R, and his WBC to 11,300 with 81% polys. Examination at this time revealed dullness of both lung fields, posteriorly, with diminished breath sounds. Penicillin was given, and the temperature gradually returned to normal. By the 21st hospital day the patient felt better and was less dyspneic, but the chest signs persisted, and abdominal paracentesis was performed, and 75 c.c. of clear yellow fluid obtained, negative culture, and no tumor cells. Venous pressure was measured at this time as 115 m.m. water. An arm to lung circulation time was 6 seconds. An arm to tongue circulation time was unsatisfactory because of the "queer sensations" which patient had always had in his tongue. By the 29th hospital day the patient had begun to accumulate fluid in his legs again, and his weight increased. Two basal metabolic rates were respectively plus 3% and minus 13%. A Congo red test was unsatisfactory. The patient was given massive thiamine therapy, but failed to improve. Approximately six weeks after admission he was still showing anasarca, despite vigorous treatment with mercurials, digitalis, and high protein, high thiamine diet. His voice was still cracked. He had bilateral hydrothorax; shifting dullness and engorgement of superficial abdominal veins were also present. B.P. was 80/56; pulse 68 and regular; there was 4 plus pitting edema. About 50 days after admission he was started on dessicated thyroid, ¼ gr. daily. His condition gradually grew worse, and he expired quietly approximately two months later.

## Discussion

*Dr. Eugene Drake:* The history states that early in his illness, this man had frequency and nocturia and that urological examination was suggested by

* Wintrobe.

the physician. Can you tell me whether during his hospital stay he was seen by the Urological Service or whether he was tested for residual urine?

*Dr. Joseph Porter:* There is no record of it.

*Dr. Drake:* It is stated that rectal examination was negative, which would mean that there was no clinical enlargement of the prostate gland. I feel sure that the possibility of urinary retention was investigated and that we may safely leave this out of our considerations. The history shows an illness of nearly a year with backache, swelling of the hands, and then of the feet and legs, a peculiar change in his voice, breathlessness on exertion, a productive cough, loss of appetite, and of strength, and constipation. It is the custom of the Medical Service to inquire into the patient's dietary history; no statement regarding diet is included in the protocol and this knowledge might be of some importance.

Next let us review the abnormal physical findings. There are:

1. Lymphadenopathy in the submaxillary and inguinal regions. Two biopsies of axillary nodes were not of help in diagnosis.

2. Cardiac enlargement, venous engorgement, bilateral pleural effusion, and an enlarged liver.

3. Albuminuria.

4. Hypoproteinemia.

5. Abnormal X-ray appearance of the bones of the hands.

We may be quite sure, I think, that this man had heart disease with congestive heart failure. The type of heart disease he had is not so certain. He is nearly seventy years old, and one could readily imagine that he had arteriosclerotic heart disease, and yet we dislike to make this diagnosis by exclusion. He had a fairly large heart, which is not so common in coronary disease, unless myocardial infarction has taken place, and the history shows no such event. The systolic murmur may mean that he had a calcified valve. Or he might have had a previous hypertension with a fall in blood pressure as he developed congestive failure.

I think you will also agree that he had a renal lesion. The urine showed large amounts of albumin. It is noted, however, that he still possessed the ability to concentrate, and the blood urea nitrogen determinations gave results which were not very abnormal.

His liver was enlarged and tender. Does this mean that he had intrinsic liver disease, or was it chronic passive congestion of the liver from heart failure? Tenderness of the liver would go well with the enlargement from heart disease. He was not jaundiced. His thymol turbidity was only one unit, the prothrombin was normal, and there was only 16% dye retention. I believe these findings could be explained on the basis of the congestive heart failure which we know he had.

The persistent hypoproteinemia is another matter. He may have lived on a low protein intake at home, but in the hospital he was given a high protein diet. To be sure, he was losing large quantities of protein in the urine, and furthermore he had effusions in the pleural and peritoneal cavities. This could explain the hypoproteinemia. Still, if it is impossible to change the level of the blood protein, you are forced to wonder if there is some underlying disorder of the body which is responsible, and such a disorder might be in the liver. I take it that the enlargement of the liver was present throughout the rest of his life. Could he have had the collagen disease? Disseminated lupus would be most unusual in a man of his age. It is conceivable that he had amyloid disease of the liver and heart, and that this was the important part of his illness. I doubt this, because of his relatively good liver function tests.

X-ray of the hands showed a peculiar appearance of the bones, and raised the possibility of sarcoid. Is sarcoid likely in this patient, and would it explain the whole picture? It might explain the swelling of his hands, but not all the other findings. Sarcoid is usually seen in younger persons, and would be most unusual in a man of seventy. The serum globulin is ordinarily increased in sarcoid, but was not in this case, so I ruled out sarcoid.

The last piece of therapy was a tiny dose of thyroid extract, given because someone thought he might have hypothyroidism. How much evidence is there in favor of such a diagnosis? He had a low blood pressure, although there is no record of bradycardia. We know that he had congestive failure, and he might be an example of the myxedema heart. Two basal metabolic rate determinations were not significantly below normal, but they might have been kept higher by the presence of heart failure. The blood cholesterol was low, instead of high, but only one determination is recorded. Of course the small dose of thyroid extract was given with the idea of increasing it if there were no unfavorable reactions. It was a therapeutic test, but we are not told whether the man improved or whether the dose of the remedy was ever increased. We are unable to draw any conclusion from the trial of thyroid. The low voltage electrocardiogram might result from myxedema. The myxedema heart is not too likely, but I cannot entirely rule it out.

The presence of fluid in the chest tends to reduce the height of QRS, and T waves in the electrocardiogram. Might this man's illness be explained by pericardial disease? Could he have had constrictive pericarditis, the enlarged heart shadow in part due to thick pericardium? That could give him congestive

*Continued on page 122*

# EDITORIALS

## The Ninety-sixth Annual Session

The Ninety-sixth Annual Session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring, Maine, Sunday, Monday and Tuesday, June 18, 19 and 20.

The First Meeting of the House of Delegates on Sunday, June 18, at 3.00 P. M., will officially open the meeting, and will be presided over by Dr. Foster C. Small, President-elect. Included on the Agenda for this meeting is the Report of the Council for 1949-1950 to be presented by Dr. C. Harold Jameson, Council Chairman, who will also present the budget for 1950-1951 as recommended by the Council for action by the House; the report of the Committee on Revision of the Constitution and By-Laws; Councilor and Committee reports not submitted for publication in the June issue of the JOURNAL, and reports of Delegates to the New England Medical Society meetings. The Second Meeting of the House of Delegates will be held Monday afternoon, June 19, at 5.00 P. M. It is hoped that there will be a 100% attendance of county delegates at these meetings.

The election of President-elect takes place "in the general assembly of the Association at the close of the first general afternoon (Monday) session."

Dr. Carl E. Richards of Sanford, Chairman of the Scientific Committee, promises a scientific program that you can't afford to miss, with all papers of value to the general practitioner. Following is a partial list of speakers: Dr. Charles O. McCormick, Clinical Professor of Obstetrics, Indiana University School of Medicine; Dr. William E. Brown, Clinical Professor of Surgery, Tufts College Medical School; Dr. Joseph Doane, Professor of Clinical Medicine, Temple University, Philadelphia; Dr. Kenneth Landauer, Director of Medical Care of the National Foundation for Infantile Paralysis; Dr. Maynard Wheeler, Ophthalmologist, New York City; Mr. Leonard Read, President, American Economic Association Foundation, Irvington on the Hudson, New York. Maine speakers will include: Dr. Emerson Drake, Portland; Dr. William V. Cox, Lewiston; and Dr. Lloyd Brown, Bangor, Chest Surgeons for the State of Maine; and Mr. Herbert E. Locke, Association Attorney.

The Medico-Legal Society will be in charge of the program on Tuesday afternoon, June 20.

The annual banquet will be held Tuesday evening, June 20, with your President, Dr. Ralph A. Goodwin, presiding. Mr. Charles F. Phillips, President of Bates College, will be the guest speaker. A feature of this program will be the presentation of Fifty-Year Medals and Five-Year Bars.

Mrs. Charles W. Steele, President of the Woman's Auxiliary to the Maine Medical Association, will be in charge of the program for the Auxiliary.

Dr. Francis A. Winchenbach of Bath, will be there to supervise the Golf Tournament.

This is just a little of what is in store for you at the June meeting; there will be more about it in the May and June issues of the JOURNAL and a copy of the complete program will be sent to each member of the Association prior to the meeting.

Make your reservations now — Remember the dates. June 18, 19 and 20 — Make attendance at this 96th Annual Session a MUST.

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## The A. M. A. Membership Dues

The problems and misunderstandings arising from the collection of A. M. A. dues and assessments have been stated frankly in a recent communication from the Association's Secretary, Dr. George F. Lull. The following procedure should be followed:

1. Remittances for membership dues should *not* be sent direct to the A. M. A. by county societies or individuals. These should be channeled through the office of the State Society where member payments are recorded. Individual members' checks received will have to be returned to the state in which the member resides. This rule also applies to the 1949 assessment.

2. Who is exempt from paying A. M. A. dues? The county shall determine when the payment of dues is a hardship, but in no case will the A. M. A. dues be remitted unless the county and state society dues are likewise remitted. The dues of a physician who joins his county socity after July 1 will be $12.50; if he joins before that date, $25.00.

3. A physician who transfers from one county society to another need not pay a second time, but he must pay once.

4. For this year only (1950), the A. M. A. will reimburse the state societies the accounting expense of collecting dues. After this year, the A. M. A. dues should be billed with state or county society dues.



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Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Joseph A. Donovan, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

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Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

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President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

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President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

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President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Androscoggin

The regular monthly meeting of the Androscoggin County Medical Society was held Thursday evening, March 16, 1950, at 8.30 P. M., at the Central Maine General Hospital, Lewiston. Twenty-three members were present. Dr. James A. MacDougall, Councilor for this District, was also present and spoke briefly.

Following a brief business meeting, Dr. Herbert Lombard, Director of the Division of Cancer Services of the Massachusetts Department of Health, presented an interesting discussion of some of the problems encountered and the approaches used by the Massachusetts Department in its cancer program.

DEAN FISHER, M. D.,
*Secretary.*

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## Hancock

The regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, March 8, 1950. Thirteen members and two guests were present.

Dr. Lyman Burgess made a motion that the Society try to prepare papers for a complete issue of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION, which was passed. Dr. Paul E. Black of Southwest Harbor, was admitted to membership by transfer from the Vermont State Society.

Dr. Donald Coulton of Bangor, addressed the society on "Surgical Aspects of Sterility." A discussion of Dr. Coulton's paper followed.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

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## Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Augusta House, Augusta, January 19, 1950, at 6.30 P. M. There were thirty-five present.

Dr. Allan C. Hurd, President of the Association, presided at the business meeting. The minutes of the previous meeting were read and approved.

Dr. Stewart Welch of Boston, guest speaker of the evening, was introduced by Dr. Shelton. His subject was "Splenectomy in Blood Dyscrasias." He discussed the various indications and contra-indications for splenectomy. Bone marrow should be normal. Previous careful blood study is necessary. The knowledge of the role of the spleen has increased and the chances of cure are much better than formerly, and the operation has a wider field of use. He was very informative and interesting. Following a discussion period the meeting adjourned at 9.30 P. M.

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A regular meeting of the Kennebec County Medical Association was held at the Augusta House, Augusta, February 16, 1950, with the Dental Association as guests.

Dr. Allan C. Hurd, President, opened the business session, calling for the record of the last meeting, which was approved. Dr. Irving I. Goodof of Waterville, and Dr. David P. Cordray of Augusta, were elected to membership.

Dr. Chester S. Keefer of Boston, was guest speaker of the evening. His subject was "The Present Status of Chemotherapy in Infectious Diseases." He outlined the development of the hormones, chemicals and anti-biotics. He mentioned tyrothrecin, discussed penicillin, and said that penicillin and streptomycin account for 60% of the dollar value of biotics.

He stated that streptomycin has given remarkable results in tuberculosis, and mentioned points about a number of biotics; basotracin in penicillin resistant cases; aureomycin in rickettsial diseases, typhus, primary atypical pneumonia; chloromycetin in typhoid. He spoke of the effectiveness of sulfonamides in leprosy and stated that penicillin should be used in tooth extractions in cases of rheumatic heart disease.

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The regular meeting of the Kennebec County Medical Association was held at the Elmwood Hotel, Waterville, March 16, 1950, at 7.00 P. M. There were fifty present.

Dr. Allan C. Hurd, President, presided at the business meeting. Minutes of the previous meeting were read and approved. Marion C. Loizeaux, M. D., of the Veterans Administration, Togus, was elected to membership. The Association voted to approve the following recommendation from the Committee on Emergency Civilian Defense of the Maine Medical Association:

> That County Societies be responsible for providing professional Medical Personnel to staff first aid stations and for organization of professional first aid teams. These would be composed of two general practitioners unqualified for military service.

Dr. Hans Waine of Boston, guest speaker, was introduced by Dr. Hurd. His subject was "Arthritis in General Practice." He gave a long, very informative discussion, and showed slides of degenerative disease pathology. Among many points of interest were: 85% of arthritis can be treated with means at the disposal of the general practitioner; ACTH is not yet in practical general use; cases may be classed as degenerative, rheumatoid, gout, infectious, etc., and that there are emotional and endocrine causes of rheumatoid.

A. H. Morrell, M. D.,
*Secretary.*

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## Lincoln - Sagadahoc

A meeting of the Lincoln-Sagadahoc Medical Society was held at "The Ledges," Wiscasset, March 21, 1950, at 6.30 P. M. There were fourteen members present.

It was voted to have one member discuss some article in The Journal of the Maine Medical Association at each meeting, as requested by the Editorial Board.

Following the business meeting a talking, colored moving picture was shown by a representative of E. R. Squibb & Sons, on "The Problem of Undernutrition and Malnutrition in the Hospital Patient, and the use of high protein foods to combat long illnesses."

Neil L. Parsons, M. D.,
*Secretary.*

## Washington

A regular meeting of the Washington County Medical Society was held on March 16, 1950, at the Johnson House, Dennysville, Maine, with seventeen members and two guests present. After a luncheon at 12.30 P. M., Dr. Samuel R. Webber of Calais, President of the Washington County Medical Society, introduced Dr. Robert J. Linton, head of the Vascular Clinic of the Massachusetts General Hospital in Boston. Dr. Linton spoke on Diseases of the Venous System of the lower extremities and illustrated his talk with lantern slides. He covered the treatment of Varicose veins of the lower extremity, stating that the treatment had gone through various stages. The injection treatment was very popular for awhile but did not produce lasting results. High ligation of the saphenous vein plus injection produced better results but was not curative in many cases. The best treatment today is high ligation of the saphenous vein plus stripping of the saphenous vein from above and below. Cases with open ulcers should not be operated on until the ulcers are healed. Varicosities due to femoral vein thrombosis "milk leg" require a different treatment because both superficial and deep veins are varicosed. It requires a more careful study of the venous system of the patient and usually a high ligation of the femoral vein plus other therapy. He stressed use of longitudinal incision in femoral vein ligation because of danger of bleeding. Some selected cases require a long incision in the lower leg in order to remove deep varicosities. Dr. Linton's talk was very well received.

This was followed by a business meeting. Dr. James W. Crane of Woodland was elected to Senior membership in the Washington County Medical Society. The Society went on record as opposing National Compulsory Health Insurance. The subject of Civil Defense planning and formation of first aid teams was brought up and explained to the various members.

It was voted to hold the next meeting in Calais on May 25 with a panel discussion on orthopedics planned at that time.

Dr. D. H. MacKenzie of Grand Harbor, N. B., was present as a guest.

Karl V. Larson, M. D.,
*Secretary.*

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## New Members

### Hancock

*Paul E. Black, M. D.*, Southwest Harbor (By transfer from Vermont State Medical Society).

### Kennebec

*David P. Cordray, M. D.*, Augusta.

*Irving I. Goodof, M. D.*, Waterville (By transfer from Androscoggin County Medical Society).

*Marion C. Leizeaux, M. D.*, Veterans Administration, Togus.

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# NEWS AND NOTES

### Lecture Meetings on Oral Cancer

The Maine Dental Society, with the assistance of the Dental Division and Cancer Control Program of the Maine Department of Health and Welfare, is sponsoring a series of lecture meetings on "Oral Cancer" during April and May.

Dr. V. H. Kazanjian of Boston, professor emeritus of Harvard School of Dental Medicine and Dr. Stanley L. Lane, associate dean of Columbia University School of Dental and Oral Surgery, have accepted the Society's invitation to address these meetings on April 28 and 29, respectively, at Lewiston and Waterville. Meetings are also planned for May 25, 26, and 27, to be held at Portland, Bangor and Presque Isle, when Dr. Kazanjian and others eminent in the field will continue the lecture series. Opportunity is thus afforded all persons to take advantage of the lecure series at points easily reached from every part of the State.

The Society has extended an invitation to the members of the Maine Medical Association to join in attendance at the meetings, the purpose of which is to acquaint the professional groups with the detection of oral cancer, biopsy techniques, and chemotherapeutic and surgical methods employed in the treatment of oral cancer.

Full particulars of the series will be announced through personal communication, press and radio. It is most deeply hoped that you will plan to attend one or more of the meetings, talk the meetings up with your colleagues and through your support of this educational venture, assure it the success it deserves.

PERLEY J. LESSARD, D. D. S.,
*President,*
*Maine Dental Society.*

## Revised Edition of Motion Picture Reviews Now Available

The Committee on Medical Motion Pictures of the American Medical Association has completed the second revised edition of the booklet entitled "Reviews of Medical Motion Pictures." This booklet now contains 225 reviews of medical and health films reviewed in *The Journal A. M. A.* to January 1, 1950. Each film has been indexed according to subject matter. The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession. Each film is reviewed by competent authorities and every effort has been made to publish frank, unbiased comments. Copies are available at a cost of 25 cents each from: ORDER DEPARTMENT, AMERICAN MEDICAL ASSOCIATION, 535 NORTH DEARBORN STREET, CHICAGO, 10, ILLINOIS.

## State of Maine
## Board of Registration of Medicine

Adam P. Leighton, M. D., Secretary, Portland, Maine.

List of physicians licensed in Maine—March 15, 1950.

*Through Examination*

Leonard W. Appleby, M. D., 155 Kilsyth Road, Brookline, Mass.

Armand Abel Albert, M. D., P. O. Box 38, Edmundston, N. B.

Wilfrid A. Cloutier, M. D., Hotel, Dieu du Quebec Hospital, Quebec, P. Q.

Gerard O. Fecteau, M. D., St. Francis Hospital, Hartford, Conn.

Arthur Martin Joost, Jr., M. D., Southold, N. Y.

Franklin Lynch, M. D., 601 W. 164th Street, New York 22, N. Y.

John George Oddy, M. D., 477 Essex Street, Lawrence, Mass.

Gustav Wilens, M. D., P. O. Box 273, Wayland, Mass.

*Through Reciprocity*

Frank George Barnard, M. D., 79 Hawthorne Place, Montclair, N. J.

Robinson L. Bidwell, M. D., 62 Mt. Vernon Street, Boston, Mass.

Allen Dana Callow, M. D., 30 Bennet Street, Boston, Mass.

David Price Cordray, M. D., 31 Western Avenue, Augusta, Me.

Donald Wesley Drew, M. D., 86 Whitcomb Avenue, Jamaica Plain 30, Mass.

Lawrence R. Hazzard, Jr., M. D., Portsmouth, N. H.

Carl William Irwin, M. D., Lahey Clinic, Boston, Mass.

Edward R. Loftus, M. D., Grasslands Hospital, Valhalla, N. Y.

Barbara G. Luce, M. D., Pratt Diagnostic Hospital, Boston, Mass.

John H. Schaeffer, M. D., Maine General Hospital, Portland, Me.

Charles E. G. Shannon, M. D., 1930 Chestnut Street, Philadelphia 3, Pa.

Gerald Boger Stattuck, M. D., 300 Longwood Avenue, Boston, Mass.

William Francis Thompson, M. D., Maine General Hospital, Portland, Me.

Wilbur S. Turner, M. D., 373 Hillside Avenue, Hartford 6, Conn.

Verla E. Worthing, M. D., George Washington University Hospital, Washington, D. C.

## Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

ORTHOPEDIC CLINICS

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

CARDIAC CLINICS

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

HARD-OF-HEARING CLINICS

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

PEDIATRIC CLINIC SCHEDULE — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

## Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

*Portland* — Health and Welfare Department, 178 Middle Street. Every Tuesday.

*Lewiston* — Out-Patient Department, Central Maine General Hospital. Every Monday.

*Augusta* — Bureau of Health, Division of Mental Health. By Appointment.

*Waterville* — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

*Bangor* — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main office of the Division of Mental Health — State House, Augusta.

*Patients are seen by appointment only.* Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

## Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Richard L. Chasse, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.


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Joslin, E. P., et al: Treatment of Diabetes Mellitus—8 Ed., Phila., Lea & Febiger, 1946—P. 241, 247.

Lowsley, O. S. & Kirwin, T. J.: Clinical Urology—Vol. 1, 2 Ed., Balt., Williams & Wilkins, 1944—P. 31.

Duncan, G. G.: Diseases of Metabolism—2 Ed., Phila., W. B. Saunders Co., 1947—P. 735, 736, 737.

Stanley, Phyllis: The American Journal of Medical Technology—Vol. 6, No. 6, Nov., 1940, and Vol. 9, No. 1, Jan., 1943.

*Clinico-Pathological Exercise—Continued from page 115*

failure, and fluid in the pleural cavities. Or the ascites and pleural effusions might have been the result of polyserositis. It is my feeling that this man suffered from heart disease, and that he had, in addition, a renal lesion. I am not able to say from the information at hand that he had constrictive pericarditis.

*Dr. Porter:* Thank you very much for this interesting discussion. I might call for one more diagnosis from the floor before telling you the results of the autopsy.

*Dr. Philip Thompson, Jr.:* I will mention one — carcinoma of the lung with obstruction of the superior vena cava, to account for the swelling of the hands, and obstruction of the inferior vena cava producing the enlarged liver and swelling of the legs. I think he did have arteriosclerotic heart disease.

*Dr. Porter:* That is not the diagnosis, Dr. Drake mentioned the disease in differential diagnosis, but ruled it out. He died of primary amyloidosis.

*Dr. Isaac Webber:* Would the glomeruli contain amyloid in this disease?

*Dr. Porter:* No, the glomeruli did not show amyloid. The most extensive deposits of amyloid which stained in the microscopic sections with Congo red were seen in the myocardium around the vessels and frequently large deposits were seen which replaced the muscle fibers. There were also deposits in the smooth muscle of the intestinal tract, about the vessels in the lungs, and in the liver. A review of the subject of primary systemic amyloidosis will be found in the article by Kolesky and Stecher.[1]

*Dr. Charles Glassmire:* Was the Congo red test repeated?

*Dr. Porter:* No.

### Reference

1. Kolesky, S., and Stecker, R., *Archives of Pathology*, 1939, Vol. 27, Pg. 267.


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# The Journal
## of the
# Maine Medical Association

Volume Forty-One | Portland, Maine, May, 1950 | No. 5


## ANTIHISTAMINIC AGENTS — THEIR ACTIONS AND REACTIONS*


Ethan Allan Brown, M. D., F. A. C. A.**


With the possible exception of aspirin, the antihistaminic agents—now that they have been released for over-the-counter-sale — are probably the most widely used of all drugs. Reports concerning their adverse reactions are usually found in papers evaluating their clinical actions, as observed by physicians administering the drugs to patients under constant supervision. Now that such supervision is minimal, it has become necessary for the general practitioner to recognize a new group of syndromes due to self-medication with the antihistaminic agents. No patient's history can be considered complete, unless a specific question concerning the ingestion of antihistaminic drugs is asked, since a secondary reaction, varying from mere drowsiness to fatal pancytopenia, may mimic a large number of other conditions. The physician who is accustomed to saying, "Take this and you'll feel better" is learning to say, "Stop taking your antihistaminic drug and you'll feel yourself again."

I may perhaps be considered an alarmist, but each day I see patients who, in the present or in the recent past, have had reactions or near-accidents because of antihistaminic treatment to so great a degree that they firmly refuse to take *any* drug of the group. And, of course, accidents are the most difficult of casual relationships to prove since the patient has no way of measuring his loss of judgment when he takes medicine irregularly and under varying circumstances.

The automobile accident rate increased 4% in January. No man minds driving his car as though all other drivers are amateurs, drunk or insane, but the possibility that an antihistaminic drug has been taken by the approaching driver makes automobile travel hazardous indeed.

What are the actions and reactions to be expected?

Technically, in humans, histamine is found in abnormal amounts in the nasal and antral mucosae and in the lungs of allergic individuals. In normal subjects, it will stimulate the uterus and the large intestine. Its injection causes increased gastric and salivary secretion and vasodepression. Its action in causing the histamine wheal and flare is well-known.

The antihistaminic agents have been defined[1] as those which diminish or prevent several of the pharmacological effects of histamine and which do so by a mechanism other than the production of pharmacological responses diametrically opposed to those producing histamine. In clinical experiments, these drugs do not counteract *all* the pharmacological effects of histamine, chiefly because histamine has a number of receptors, some of which may be blocked differ-

* Presented at Cumberland County Medical Society Meeting, Portland, Maine, February 23, 1950.


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ently if histamine is given before or after administration of antihistaminic drugs. The histamine may also be intrinsic or extrinsic, the former not being affected to the same degree as the latter, which may travel by means of the circulation to the shock organ.

All of the antihistaminic agents are derivatives of ethylamine, although usually given as ethanolamine or ethylenediamine. Some are thiophenes and some, pyrindindenes. According to Dreyer,[2] some "possess local anesthetic properties — they have atropine-like, anti-spasmodic quinidine-like, demerol-like and musculotropic actions . . . some antihistaminic drugs sensitize to epinephrine while other desensitize. The antihistaminic drugs have dual actions on some tissues, as shown by their effects on striated muscle. In small concentrations there is increased contraction due to indirect (nerve) stimulation. In high concentrations, indirect stimulation is suppressed, presumably because of block at the myo-neural junction, but contraction is not inhibited upon direct stimulation of the muscle. Similarly, the antihistaminic drugs depress impulse transmission at autonomic ganglia. In the autonomic system, cholinergic responses are partially or completely depressed, depending upon the drug used, whereas adrenergic responses are usually undiminished and may even be potentiated by some drugs."

The antihistaminic agents are inconsistent in their action, in that a drug may be effective at one time for one patient and not for a second administration, although the patient's condition may appear to be identical. Ineffectiveness is also capricious. In occasional patients, prolonged administration of the drug which causes side reactions may lessen them, while in others, each successive dose brings on more severe side reactions until the patient is completely intolerant of even the smallest dose. There is no specific method of deciding whether the patient will benefit from any one drug, although it is usually the rule to administer the drug which is reported to have the smallest percentage of side reactions with the greatest degree of efficacy. It must be remembered, however, that drugs, chiefly toxic in themselves, are often taken with no side reactions; and others listed as having little or no toxic effects may cause side reactions of unbelievable degree. All, every one without exception, affect the judgment of the patient by the two-point discrimination test.

The following effects have been noted. Each of the drugs is listed alphabetically.

*Antistin*

Brack[3] reported dizziness. Kaplan and Ehrlich[4] noticed nausea in 6 patients, sneezing in 1 and dryness of the mouth in 4, and dizziness in 2. In one patient, the symptoms were sufficiently severe to necessitate discontinuation of the drug, with severe sneezing spells occurring each time the patient took a tablet on three successive days.

In the series by Waldbott and Gadbaw,[5] 21%, 33 of 159 patients given Antistin complained of side reactions. Drowsiness, dizziness and diarrhea were the most common. Other side effects noted were nausea, muscular twitching, restlessness, dry throat, parathesiae and headache.

*Benadryl*

The toxicity of Benadryl has been studied by Sachs.[6] His own patient developed severe toxic reactions, including dizziness, dryness of the mouth, visual and olfractory hallucinations, mental confusion, tremor and jerky, rapid speech, the latter two reactions being reported for the first time. A review of the literature (April, 1947) by Sachs concerns detailed documented studies of 1,210 patients, 46.4% of whom had side reactions. Drowsiness, the most common reaction, occurred in 34.2% of the patients, and varied from a mild sensation to deep slumber, lasting 18 hours. Dizziness occurred in 14.1% of the patients, dryness of the mouth in 5.6%, nausea in 2.6% and nervousness in 2.3%. Asthma as due to Benadryl has been reported in 11 patients.

All of the following have been reported as effects of Benadryl intoxication and any or all can be expected following the ingestion of any antihistaminic drug: Drowsiness, dizziness, nervousness, weakness, fatigue, faintness, parathesia, difficulty in coördination, mental confusion, headache, amnesia, lassitude, choking, slurred speech, malaise, disorientation, tinnitus, stupor, narcolepsy, somnambulism, exhaustion, irritability, giddiness, slow speech, athetoic movements, acute melancholia, peripheral neuritis, insomnia, tremor, sense of relaxation, mental lethargy, walking on air, all-gone feeling at the pit of the stomach, acute hysterical reactions and apprehension, the latter two following intravenous therapy.

In the alimentary system, patients have complained of dry oral cavity, nausea, vomiting and epigastric distress, a "bad taste," diarrhea, abdominal cramps, indigestion, heartburn, sore tongue, constipation, "chloroform-like taste," the last due to intravenous therapy.

In the cardiovascular system, reports have been made of orthostatic hypotension, hypotension, palpitations, facial edema, elevated pulse rate, excessive perspiration, cold extremities, vasospasm of fingers, pallor, collapse, shock-like reactions, hot flashes, a tendency to bleeding and chills, following intravenous therapy.

In the respiratory tract, patients have complained of dry nose and of asthma and in the genito-urinary tract, discomfort, frequency and impotence.

In the muscular system, there have been aching, twitching and low-back pain, and in the ocular sys-

tem, blurring of vision, difficulty in accommodation, dilated pupils, photophobia and dimmed vision. Miscellaneous effects include generalized pruritus and aggravation of the original allergic symptoms. Reactions have occurred with a single dose of 50 mg., although 600 mg. have been given in one day without toxic effect. There is an additive effect when the drugs are given with sedatives or hypnotics, sleep being deepened and prolonged. In 6.4% of the patients the drug was discontinued because of toxic reactions.

In the patient studied by Geiger et al.,[7] 50 mg. was given three times daily for pruritus, the patient responding with pallor, unobtainable blood pressure and a general shock-like reaction. A second administration caused excitement, disorientation, pallor, palpitations, nausea and general malaise. It is important to realize that Benadryl may be passed to an infant who is breast-fed as seen in the report by Eisenberg,[8] the child becoming quite lethargic when the mother took 50 mg. of Benadryl every 3 hours to relieve a contact dermatitis. One of Bowen's patients[9] suffered a Benadryl jag and, failing to heed a red traffic light, was arrested for intoxication. Crandall[10] reported 4 of 5 patients who, after receiving either Benadryl or Pyribenzamine in large doses for several months developed anemia with a red cell count as low as 2.5-3,000,000 and a white cell count reduced to 1200-1500 with a decrease in granulocytes. Benadryl has been used to commit suicide, the patient being successful with 30 capsules of 50 mg.[11]

*Chlorothen*

The toxic effects of Chlorothen[12] were shown to include sedation, which occurred in 27% of 232 patients, varying from slight diminution in alertness to marked sleepiness. The author feels that the drug is less sedative than Benadryl and more sedative than Pyribenzamine. Some other less frequent toxic effects were nervousness, dizziness, and nausea or indigestion, and one case of each of the following: headache, constipation, and an itching rash. In all, 71 of 232 patients had undesirable side reactions, with no immediate serious or delayed toxic effects being noted.

*Decapryn*

According to the Council of the American Medical Association, Decapryn is recommended as a highly effective antihistaminic agent with a high index of sedation. On the other hand, Brown *et al.*[13] found that in 123 allergic patients, only 23 experienced side reactions, of whom 15 had bronchial asthma and were taking rather large doses, while reactions were moderate in 5 of the remaining patients and severe in 3, drowsiness being the most marked symptom.

In a series of 157 patients studied by Feinberg and Bernstein,[14] side effects, several occurring together, were seen in 39 patients, of whom 36 suffered from sedation and sleepiness, 4 nervousness, 4 vertigo, 2 headache, and epigastric pain, 1. Withdrawal of the drug was seldom necessary.

*Diatrin*

Toxicological studies by Combes *et al.*[15] showed that in 72 subjects with doses varying from 100-1000 mg./day for 2-82 days, one or more of the following side effects occurred in 15 patients; nausea in 7, emesis in 4, urinary frequency in 4, fever in 3, diarrhea in 1, urinary urgency in 1, headache in 1, and drowsiness in 1 on the first day only. In one patient there was a fall of polymorphonuclear leukocytes to 34%, and one patient presented an eosinophilia of 24% associated with emesis.

Agranulocytosis due to Diatrin has been reported upon by Drake,[16] whose patient's white cell count went down to 1,000 with a red cell count of 3,230,000 and a hemoglobin of 62% following Diatrin 50 mg./8 hourly taken for seven weeks. He became weak, disoriented and semistuporous, with dysphagia and urinary and fecal incontinence. The temperature ranged from 100.4-105 F. and for three days the condition was critical before recovery began. For emphasis only it is reported that, to date, similar reactions have also been described on two occasions following Pyribenzamine administration and once for Antergan ingestion. Drake stresses the fact that Diatrin, Pyribenzamine and aminopyrine all are structurally related in containing a benzamine linkage.

*Dramamine*

Although Dramamine is not used directly for its antihistaminic effects, it nevertheless belongs in the same group of drugs and has similar side reaction. Strickland[17] described 18 of 206 men showing dizziness, mental depression or drowsiness following its use. Eighty-two patients given Dramamine by Beeler *et al.*[18] showed side effects in 15 who were drowsy, oral bad taste in 8, parathesia in 2, and nausea in one.

*Histadyl*

Pierce and Mothersill[19] found that in 77 patients, transient side effects, such as light-headedness, sleepiness and dizziness occasionally occurred, while in the series by Feinberg and Bernstein 25% of 253 patients given 50 mg. doses showed undesirable side reactions, consisting chiefly of sedation, other side effects being vertigo, nervousness, dryness of the mouth and throat, excitation, insomnia, headache, nausea and diarrhea.

*Hydryllin*

According to Arbesman,[20] Hydryllin caused side effects in 33 of 91 patients, that is, 35%, 14% showing severe side reactions. In the group studied by Markow,[21] 30 of 81 patients, that is 37% experienced 71 toxic reactions of varying severity. In 13 of 16%

these were slight and were ignored, in 5-6% they were moderate, but the drug was continued, in 12-15% severe reactions occurred. There were 17 cases of drowsiness, 11 of weakness, 2 of fatigue, 7 of headache, 11 of dizziness, 8 of nervousness, one each of tremor, dry mouth, urinary frequency, belching, nasal clogging, nocturia and flushes, 2 of burning of the throat, and 6 of nausea. In the study of 9 reports concerning Hydryllin, side effects occurred in 36% in one group of patients and 35% of 3 more additional groups. In 28% of approximately 1,500 patients, the lowest reports were 19.5% side reactions in 83 patients.

*Neo-antergan*

The chief side effects noted by Hunter[22] were anorexia and nausea, other untoward reactions being headache, dizziness, lassitude, sleepiness, palpitations, slight anxiety, and rarely, vomiting or drug fever. Two patients responded with asthmatic attacks, and one patient with a severe toxic reaction to parenteral therapy.

*Neo-hetramine*

A report by Waldbott and Borden[23] showed that following the use of Neo-hetramine in 279 allergic individuals, 9 of those with bronchial asthma, 17 of those with hay fever, 1 with atopic eczema and 2 with contact dermatitis, suffered side reactions. Dizziness and drowsiness were the most prominent, several patients presenting muscular twitching 20 minutes after the ingestion of the drug, the symptoms disappearing spontaneously in approximately one hour. In one patient these resembled epileptic attacks, lasting from one and a half to two hours. In the series studied by Schwartz and Reicher,[24] of 111 patients treated with Neo-hetramine, 8 complained of side reactions, 2 discontinuing the use of the drug, one because of severe nausea and the other because of an increase in asthmatic symptoms occurring 30 minutes after taking 50 mg. In 6 patients there were transitory symptoms, such as dryness of the mouth, drowsiness, nausea and bitter taste, nervousness, headache and restlessness. Our own results, and those of others, show a very much greater incidence of side reactions.

*Perazil*

The chief side reaction seen in Perazil by Jaros[25] has been drowsiness, noted in 4 of 84 patients treated. In a series of 186 patients studied by Brown *et al.*[26] side reactions were seen in 5 of 74 with hay fever, 1 of 13 with urticaria, 3 of 30 with hay fever and asthma and 1 of 18 with asthma alone. The side reactions consisted of drowsiness and were usually seen in association with doses in excess of 100 mg. daily.

*Phenergan*

Although Phenergan is not generally available for therapeutic purposes, in the reports by Halpern,[27] 25% of the patients showed side effects such as drowsiness, insomnia, vertigo, instability, and sensations of drunkenness with slight decrease in intellectual power. Two patients developed neutropenia.

*Pyribenzamine*

Pyribenzamine has been in use for some years and therefore its side reactions are well known. In 1947, Blanton and Owen[28] described granulocytopenia due to this drug, as did Cahon *et al.*[29] who reported agranulocytosis resulting from the use of Pyribenzamine over a period of five and a half weeks. The patient's white cell count decreased to 1700, the cells being 98% monocytes, and 2% neutrophils. A third case by McCormack and Whiting[30] resulted in a decrease of the white cell count to 1100 with a complete disappearance in neutrophils following the ingestion of 400 mg. of Pyribenzamine for one month prior to the onset of the illness. These patients made uneventful recoveries. Jennes[31] has reported impotence in 2 cases following Pyribenzamine therapy and Wolfson,[32] urinary obstruction. An unusual reaction noted is the occurrence of acute urticaria following Pyribenzamine therapy, as reported by London and Moody,[33] whose patient on two separate occasions responded to Pyribenzamine with an attack of urticaria, giving no response to the excipient. Harris and Shure[34] reported on an eczematoid dermatitis due to the ingestion of Pyribenzamine and Rattner and Graffin[35] on a dermatitis medicamentosa in which an exacerbation was caused by oral Pyribenzamine. In this regard it should be remembered that Benadryl also causes generalized pruritus and occasional urticaria. The reactions due to topical use of Benadryl and Pyribenzamine as followed by contact dermatitis are not being reported in the present paper.

Of selected reports are those of Leibowitz *et al.*[36] who found that of 68 patients treated with the drug, 25 or 36% complained of side effects, one patient falling asleep while driving an automobile and another patient showing marked palpitation, nervousness and weakness. Drowsiness occurred in 10 patients. Other side effects complained of were the usual headache in 5 patients, dryness of the mouth in 2, dizziness in 4, tinnitus in 2, nervousness in 4, and nausea in 2. With Pyribenzamine used intranasally in seasonal and non-seasonal hay fever, Schwartz and Leibowitz[37] found that in a group of 100 patients, 38% complained of a burning sensation of the nose or throat or both, using the 0.5% solution; in 3 the medicine had to be discontinued and in 1, it initiated a severe cough soon followed by an asthmatic attack. In one patient, the nasal obstruction was increased, none of the patients experiencing any general toxic reactions. Two patients studied by Gordon[38] responded to Pyribenzamine with anuria. A second ingestion was followed by the same type of anuria.

In 301 patients studied for the effect of Pyribenzamine on the common cold, 10 or 3.3% had reactions severe enough to demand stopping the drug. Six patients were sufficiently drowsy to discontinue Pyribenzamine therapy; 2 patients developed such serious nausea and dizziness that they could not continue taking the drug. In addition, Churchill and Gammon[39] showed that Pyribenzamine given to epileptic patients not only failed to effect improvement, but rather increased the frequency of generalized seizures, the drug being contra-indicated in petit mal.

*Pyrrolazote*

Pyrrolazote has been studied by Zolov,[40] who used it in 88 patients, the side effects being "quite disconcerting in 24 cases." Withdrawal of the drug was necessary in 10 patients because of severe nausea, although 10 other patients who suffered milder nausea and relief of symptoms could continue using it. In 3 patients there was severe dizziness and in 10, marked drowsiness. The drug was discontinued in these patinets. One patient was relieved of migraine but suffered severe pelvic cramps, the same patient demonstrating the same reaction to Pyribenzamine in similar doses. According to Burbidge[41] in 1,469 patients, the side reactions totalled 23%, 11% represented by drowsiness.

*Thenylene*

The evaluation of Thenylene by Kierland and Potter[42] describes 21 untoward reactions as experienced by 78 patients who received the drug. More than one type of reaction was often experienced by the same patients. Seven patients experienced drowsiness, with dizziness in 4, vomiting and gastro-intestinal upset in 4, headache in 3, insomnia in 1, nervousness in 1 and urinary difficulty in 1. In several cases it was necessary to stop the medication, although there were no serious toxic reactions. Horton[43] stated that Logan had seen a patient with an acute reaction to Thenylene, characterized by excitation and convulsions. Rives *et al.*[44] described a fatal reaction to Thenylene in a child who ingested 100 mg. at 9.30 A. M., with projectile vomiting at 11.30 A. M., and then occasional tetanic jerking of the extremities, climaxed by a severe clonic convulsion at 1.10 P. M. The clonic convulsions continued with a rise in temperature to 107 F. (by rectum), the patient dying at 12.40 A. M. The principal abnormalities of autopsy were cerebral edema and nephrosis with immediate anuria and a tremendous rise in non-protein nitrogen.

*Thephorin*

In one series of 76 patients, 5 taking Thephorin experienced insomnia, and 1, nausea[45] and in another series, 12 of 95 patients[46] suffered side reactions such as drowsiness, dryness of the mouth, headache, indigestion, tiredness, dizziness, palpitations or bitter taste. In a third series of 100 patients by Boyd *et al.*,[42] 42 subjects developed one or more toxic symptoms, the most common being dehydration of the mucous membranes experienced by 22% and insomnia by 21%. Other side reactions included drowsiness, dizziness, weakness, somnolence, jumpiness, nervousness, burning and tearing of the eyes, constipation, cramps, anorexia, nausea, palpitations and flushing. In a fourth series of 292 patients studied by Cohen *et al.*[48] side reactions occurred in 54 patients and necessitated discontinuation of the drug in 11, with the usual reactions being described, nausea, vomiting, constipation, palpitations, insomnia, headache and also urticaria. In a series of 189 patients studied by Criep and Aaron,[49] 23% reported side reactions on the 25 mg. dose, the reactions being those described above. In another series of 40 patients, 22 had no side effects, but 14 suffered from insomnia, 9 from tension, and 5 from dizziness, grogginess, lassitude, urinary urgency and chilliness, and one from gastro-intestinal disturbances. The total number affected was 35%. In still one more series of 280 patients studied by Paul *et al.*,[50] 75 complained of side reactions, all being those described above. In some patients the stimulating effect, lessening fatigue-ability, may cause addiction, patients requesting the use of the medicine after the pollen season was over.

*Trimeton*

Brown[51] reported that in 227 patients presenting 20 allergic and non-allergic syndromes, side reactions, chiefly drowsiness, appeared in 16%, being mild in 7% and sufficiently severe to discontinue treatment in 6%. In Wittich's series[52] of 125 patients, side reactions include nausea, vertigo, abdominal pain and bronchial asthma. In the series by Schiller and Lowell,[53] dryness of the mouth was seen in 3, weakness in 1 and drowsiness in 6 of 55 patients. Other series have given comparable results. With Chlor-Trimeton, the incidence of side reactions was 10.8%, drowsiness, vertigo and gastro-intestinal upsets being most frequently noted.

## Summary

Only those papers concerned with a sufficiently large number of cases have been examined for the drugs most often prescribed. The side reactions described are, almost all of them, common to all the drugs used, although occasionally a single side reaction may be common to only one drug.

From what we know now of their affects and the basis of present sales for "anti-cold" treatment alone, we can expect 17,000,000 people to suffer mild reactions and an additional 8,000,000, severe reactions.[54] Since only 10% of the patients respond to the ¼ dose (toxicity, 7.5%), and 26% to the ½ dose (toxicity, 29%), a patient who takes two or three tablets of an anti-cold preparation soon reaches the reactive dose (toxicity, 61%), especially because he

has no way of measuring either the length of time the drug is effective or when the effects of cumulative dosage begin. In the ensuing discussion,[54] Dr. Stormont stated that had he had the information presented, the Pure Food and Drug Administration would have acted differently in permitting over-the-counter-sales.

Patients taking antihistaminic agents, either alone or as the constituents of "cold cures" must be warned that symptoms, varying from loss of judgment and drowsiness to fatal anemia may result from continued unsupervised use.

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The hospital is a key location in which to conduct a case finding program. Many of the related factors of tuberculosis control such as nutrition, economic distress and social maladjustment are receiving constant study and attention, but the basic solution remains one of action in mass case finding, diagnosis and treatment. — The Importance of the Hospital as a Tuberc. Case Finding Center — Hospital Council of Greater New York and New York Tuberc. and Health A., 1950.

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The great physicians of all time have understood that medicine is not a study of disease, but a study of man: an individual who is a member of a family and who is part of a community . . . The purpose of medicine is to make available to all the people, in the greatest possible degree, the achievements of science as they relate to the promotion of health and to the prevention and treatment of disease.—W. G. Smillie, M. D., *New England J. Med.*, January 12, 1950.

# SURGERY IN THE DIABETIC*

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Although it is generally understood that diabetes adds to the risk of surgery, the degree of risk in any given diabetic is not alway properly assessed and correlated with the type and gravity of the surgery to be undertaken. Some considerations involved in this task is the objective of the discussion to follow.

Certain well established general facts may be stated at the outset: Diabetes produces premature aging of arteries. Diabetics over forty years of age who have had the disease for some years are likely to have a significant degree of coronary disease. The diabetic of old age must, therefore, be regarded as a double surgical risk. Even the well regulated diabetic has a certain amount of nutritional impairment. The liver lacks a normal glycogen reserve and vitamin deficiencies are commonly present. Additional disease, such as infection, thyrotoxicosis or gall bladder disease, depletes the glycogen reserves still further and makes a latent vitamin deficiency more readily visible, as e.g., in the form of a smooth red tongue.

The decompensated diabetic is not only in a state of hyperglycemia, he is in or near a state of ketosis as well. He is then more resistant to insulin, so that derangements of carbohydrate metabolism are all the more difficult to control. Acidosis, if present, tends to get worse with distortion in fluid and electrolyte balance. Excessive loss of sodium produces acute dehydration, which is aggravated by the diuretic effect of the glycosuria. If the dehydration results in shock, it becomes necessary not only to quickly repair the fluid and electrolyte disturbance, but to give blood or plasma as well, to restore deficient circulating blood volume. The decompensation may result not only from failure to control the diabetes itself, but from the acquisition of an additional depleting disorder as e.g. vomiting or diarrhea from any cause, infection or major trauma.

The surgical care of the diabetic is not different from that of the nondiabetic. But the hazards implicit in the nutritional imbalance increase the danger of postoperative complications. The surgeon must bear in mind that the diabetic is a chronically ill person. He is not only deficient in carbohydrate metabolism, he is easily precipitated into a state of protein depletion as well. Indeed, his whole nutritional pattern is upset. If there has been a recent rapid loss of weight, the depletion of reserves is all the more severe. He is deficient in antibodies and more susceptible to infection. He will show a lag in wound healing, greater susceptibility to wound rupture and the development of bed sores. The additional burden of an operation may also precipitate the patient into a frank deficiency state with decreased ability to tolerate or to compensate for deviations from normal patterns of balance. Hence one will undertake surgery in the diabetic with more than the usual circumspection.

If the surgery is elective, so that time is allowed for achieving the best possible approximation to homeostasis, preoperative preparation will include the following measures:

(1) Determination of the status of the coronary vessels by a history of angina pectoris, response to exercise, electrocardiogram, etc. (2) Provision of (a) adequate fluid and electrolyte balance, if it is disturbed; (b) sufficient intake of carbohydrate and protein to insure a good glycogen store in the liver and a normal serum protein; (c) a large vitamin intake, especially of the vitamin B complex, because proper carbohydrate combustion requires ample stores of this group of vitamins, even more in diabetics than in nondiabetics. If the patient has been starved, has liver disease, chronic gastro-intestinal disease or has been taking intestinal antibiotics, vitamin K may be lacking and should be given, if the prothrombin is low. (3) Correction of anemia. If anemia is present, a high protein intake will not serve for storing protein. The body will use the protein first for making hemoglobin. Therefore, blood should be given to correct the anemia.

Too much enthusiasm in preoperative preparation can do the patient harm. Thus, if the patient can walk and be active when he comes to the hospital, he should not be confined to bed while awaiting operation. Too much bed rest is harmful, before as well as after operation. Keep the patient active.

The urine of a diabetic need not be sugar free on the day of operation. If control of the hyperglycemia is difficult because of infection or thyrotoxicosis, one may be content with a green or olive-green Benedict's Test. For a mild glycosuria is not harmful provided there is no acetonuria. It is perhaps even desirable to let the patient spill a little glucose, for a sugar free urine allows less leeway for the avoidance of insulin reactions during operation. Hypoglycemia can do serious harm in a diabetic with coronary heart disease. If hypoglycemia occurs during operation while the patient is unconscious, it may go unrecognized and untreated, with the danger of resulting severe damage to the central nervous system as well as to the

* Presented at the York County Medical Society Meeting, November 9, 1949, at the Goodall Hospital, Sanford, Maine.

heart. Consequently, the insulin to be given on the morning of the day of operation should be administered so that the maximal response shall be in evidence after the anesthetic has worn off.

If the patient is in acidosis preoperatively, insulin should be given in sufficient amount to restore the blood sugar and $CO_2$ levels to near normal. The amount of insulin required in severe acidosis may be enormous. Infection, if present, may prevent the attainment of metabolic balance or even precipitate a state of coma. Coma is likely to be accompanied by shock, and shock is especially hazardous in diabetics.

As a rule, a patient in diabetic coma should not be operated upon. But, if the coma does not yield to insulin and appropriate therapy for acute dehydration, it may be because of severe sepsis. The drainage of a septic focus may be required to bring the patient out of coma. If sepsis prevents establishing control of the diabetes, the surgeon should not stand aloof and insist upon control before he will operate. One should aim for the best control attainable and then drain the pus. A certain degree of metabolic imbalance is not incompatible with doing emergency surgery.

*Immediate Preoperative and Postoperative Care*

The susceptibility of diabetics to infection makes it especially desirable to administer prophylactic antibiotic therapy, e.g. aureomycin or procaine penicillin for protection against postoperative pulmonary complications. If the surgical wound has been contaminated during or after operation, an appropriate antibiotic should be used, preferably before infection becomes established. If the surgery involves the gastrointestinal tract the best preoperative and postoperative antibiotic is aureomycin.

Drugs: Morphine should be given with caution, because it may mask hypoglycemia. If coronary heart disease is present, it is well to remember that insulin may depress coronary blood flow, and must be used with great caution. Drugs such as pituitrin and epinephrin also exert a vasoconstrictor action on the coronary vessels.

Renal function should be adequate. A dehydrated patient is a bad surgical risk and must not be subjected to surgery until well hydrated, i.e. enough fluid must be given to produce a daily urine output of 1500 c.c., with an average specific gravity of about 1015. The fluid should be physiologic saline solution with 5% glucose. If acidosis is present, 1/6 molar lactate is added. Severe or protracted vomiting or diarrhea may have produced a deficit of potassium, which should also be replaced. Once the fluid deficit is corrected, glucose in water is given as a diuretic to revive renal function which has been depressed by the dehydration.

If the operation is to be done early, give $\frac{1}{2}$ the PZI dose, plus 10 units of regular insulin and a glass of orange juice, 3 hours before operation. If the patient can be given a regular breakfast so much the better. If oral feeding cannot be done, give glucose intravenously with 1 unit of insulin for each 3 grams of glucose. Run the fluid in slowly, i.e. 1 hour for 1 liter of 5% glucose, so as not to lose glucose in urine.

The anesthesia must avoid anoxemia. Local, spinal or cyclopropane are preferable. Ether aggravates acidosis, depletes glycogen stores and facilitates nausea and vomiting.

Anything during operation which may cause or aggravate myocardial anoxia (severe hemorrhage, respiratory depression due to excessive morphine or obstructed airway) or increase the work of the heart unduly is especially hazardous.

*Immediate postoperative care of the diabetes:* Give 150-200 gms. of glucose daily for the first few days, in any form the patient can take it. Insulin is given according to the Benedict Test of the urine: a red test requires 15 units, an orange test 10 units, a green or yellow test 5 units. If necessary insert an inlying catheter to get urine samples regularly. As soon as possible give the patient a 150-80-80 diet,* and at this time begin PZI instead of regular insulin.

If infection has been controlled, or pus evacuated, the insulin requirement will promptly drop. If not, the insulin requirement remains up. After thyroidectomy the insulin requirement falls. If the insulin is not reduced, one is likely to produce hypoglycemia.

*Peripheral Vascular Disease in Diabetics*

Arteriosclerotic occlusion in the lower extremities of diabetics is a progressive disorder which cannot be effectively controlled by any known therapeutic agents. The flow of blood is not significantly increased by lumbar sympathectomy. If gangrene occurs, amputation will be necessary. The only substantial modern advance in the therapy of this disease is the use of antibiotics to control infection. This has made it possible in most instances to perform lower leg rather than low thigh amputations. It is now possible in not a few instances to obtain healing of an amputation through the heads of the metatarsals, providing infection has been controlled and gangrene is limited to the toes. For the most part, emergency guillotine amputation for spreading sepsis, requiring later revision, can be avoided by the intensive administration of antibiotics. Among the latter parenteral aureomycin and penicillin are the most effective. For local therapy bacitracin or aureomycin are useful, and may serve not only to prevent an indolent ulcer from enlarging, but also to facilitate healing when the blood supply is marginal.

There is a tendency among the inexperienced to assume that a septic toe or foot in a diabetic is necessarily due to occlusive vascular disease. Many dia-

* In children the CPF ratio should also be 2:1:1.

betic feet become septic even while the circulation is still adequate. Such extremities can be healed, with the preservation of a useful foot, if adequate drainage is provided following localization of the infection. The antibiotics are by far the most effective agent for this purpose. Local therapy is minimal. Hot wet packs are virtually outmoded. It is usually sufficient to seal the open lesion with an ointment containing bacitracin or aureomycin and to leave it so until localization has been accomplished. Surgical drainage is then in order. Proper performance of surgical drainage for infection which has burrowed into the foot usually requires excision of one or more of the metatarsals as well as the toes in the area involved. If the 4th metatarsal is excised, the fifth should be removed as well for proper drainage.

The risk of surgery in the diabetic has been considerably reduced in the last ten years. The rewards to the surgeon as well as to the patient are proportional to the care given to correcting the disturbed physiology in diabetes and the extent to which sound surgical principles are applied.

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# THE EXPLOSIVE HAZARD IN THE OPERATING ROOM*

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Fires and explosions in the operating room, though infrequent, breed fear among both physicians and the public. It is unfortunate that we recall vividly such unusual accidents while more frequent "quieter" disasters from poorly administered anesthetics, from ill-advised or incompetent surgery, or from preventable and treatable post-operative complications, etc., pass sometimes unnoticed by physicians and always unheralded by newspaper publicity.

Various studies have been made to determine the number and types of explosions which have occurred.[1] The Sub-Committee on Fires and Explosions of the American Society of Anesthesiologists[2] listed all reported fires and explosions from 1925 to 1939. (Table 1) Greene,[3] in 1941, was able to collect 230 fires and explosions in the literature. Such figures mean little because observers are reluctant to report these accidents. In 1939, the *J. A. M. A.*[4] estimated that there were about 100 ether accidents per year. It has been said that there are about 100 ether explosions in England annually.[5] Woodbridge[6] in his study concluded that the explosion rate is 2 to 4 per 100,000 administrations with a mortality of 1:1, 150,0000.

Table 1

*Sub-Committee on Fires and Explosions*

*1925-1939*

| Agent | No. Expl. | Deaths |
|---|---|---|
| Ether in air | 23 | 2 |
| Ether in oxygen | 10 | 3 |
| $N_2O$, $O_2$, ether | 19 | 9 |
| *Ethylene in oxygen | 16 | 5 |
| *Cyclopropane in oxygen | 9 | 3 |

* These cases include those with ether added.

Many of our recently publicized explosions have occurred while cyclopropane was being administered so that many physicians have become unduly fearful of the explosive properties of this agent. The Council on Pharmacy and Chemistry of the A. M. A.[7] reported that the explosion hazard was the same with cyclopropane as with ether and ethylene. Woodbridge[8] stated that all are equally dangerous and that only open-drop ether is safer. Horton[9] emphasizes that statistics as to the difference in explosive hazard with various agents are invalid as yet because of the small number of explosions to date.

## Factors Concerned in Explosions

A combination of factors must be present to produce an explosion with these anesthetic agents.[10]

a) Combustible material. This material may be gaseous, liquid, or solid.

b) Oxygen supply. Oxygen, air, or nitrous oxide may be the source of this necessary element.

c) Ignition sources:
   1) Open flames such as alcohol lamps, matches, cigarettes, etc.
   2) Sparks. These may come from the electric current or from static electricity.
   3) Heated materials such as cautery.
   4) Miscellaneous group as spontaneous combustion or oil under pressure.

d) Distribution of oxygen in the combustible materials. A close admixture of oxygen with the combustible material is necessary for fire or explosion.

## Definitions

It is necessary to define the term ignition temperature for clear understanding of the explosion problem. The ignition temperature is the minimum temperature required to cause a mixture to ignite or the temperature at which rapid combustion becomes independent of the external heat supply. It is not a well defined constant and depends upon a number of

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variables with which we are not concerned at this time. It is noteworthy, however, that the ignition temperature of a mixture differs somewhat depending upon whether the ignition source is a flame or a spark.

Table 2 gives the minimum ignition temperatures of the various commonly used agents in air and oxygen.[10] It will be seen that the ignition temperature of ether in oxygen lies well below that of cyclopropane in oxygen.

Table 2

*Minimum Ignition Temperatures*

| Agent | In Air | In Oxygen |
|---|---|---|
| Ethylene | 490°C | 485°C |
| Cyclopropane | 498°C | 454°C |
| Ether | 304°C | 182°C |
| Vinethene | 360°C | 327°C |
| Ethyl chloride | 517°C | 468°C |

Anesthetists are primarily concerned with the inflammability of the mixtures commonly used to produce unconsciousness. The limits of inflammability (explosion limits, inflammation limits) concerns the capability of a mixture to propagate flame once it is ignited (not the ability of an ignition source to initiate flame). Unfortunately practically all our agents are most effective in the highly explosive range.[10] (Table 3)

Table 3

*Anesthetic Concentration*

| Agent | % Employed | Remarks |
|---|---|---|
| Ether | 3-20% | Highly explosive range |
| Cyclopropane | 5-30% | Most violent explosive range |
| Ethylene | 80% | Not inflammable but inflammable range traversed at beginning and end of anesthesia |

The violence of an explosion depends upon the speed of propagation of flame within the confines of the apparatus. In air, or near the limits of inflammability, the rate of flame propagation is only a few feet per second. If a mixture lies near the middle between these limits and there is a high concentration of oxygen present, we have the most violent type of explosion. Agents mixed with pure oxygen, or nitrous oxide, or mixtures of both go to complete combustion and the speed of propagation may be over 1000 feet per second. When such great speeds are attained, the explosion is then termed a detonation and great damage may be done. Detonations are not produced if the percentage of oxygen and nitrous oxide is less than 30% of the mixture.

## Laboratory Data

Certain laboratory data are of practical interest to the anesthetist. Experiments have shown that it is impossible to obtain non-inflammable mixtures containing cyclopropane-nitrous oxide-oxygen. Nitrous oxide-oxygen-ether is inflammable when the percent of ether ranges from 2 to 56%. Adding helium to ether-oxygen reduces the violence of the explosion though complete non-inflammability is not obtained. The combination of cyclopropane-ethylene-oxygen has been suggested[11] to reduce the explosion hazard but it has no advantage over a cyclopropane-helium-oxygen combination. Also ethylene has an objectionable odor to those in the operating room.

It has been found that the use of helium or nitrogen in mixtures of cyclopropane-oxygen or ether-oxygen may be of great benefit in reducing the explosion hazard with these agents.[12] Helium and nitrogen act as dampeners and are themselves inert. After considerable study of mixtures containing either of these two gases, Jones et al.[10] concluded that if the oxygen concentration is kept below 30%, the number and the violence of explosions will be reduced even if non-inflammability of the mixtures administered cannot be obtained in all cases. They recommend the use of helium along with cyclopropane-oxygen at all times. The addition of ether to the mixture does not increase the hazard and may often make the combination non-inflammable. It is remarkable that in clinical tests one of the most commonly used combinations, nitrous oxide-oxygen-ether, was always inflammable and usually highly explosive both by flame and spark ignition.

## Explosion Preventive Procedures

Explosion preventive procedures may be considered under three headings.

1) Education of operating room personnel: This is probably the most important measure in safeguarding against accidents. Nurses, physicians, and orderlies must be explosion-conscious. Nothing should be laid inadvertently on the anesthesia apparatus nor should it be touched without the anesthetist's approval. Before making electric circuits, setting up cautery, etc., they should ascertain from the anesthetist whether an explosive mixture is being employed or not.

2) Operating room: The operating room should be designed for use with explosive mixtures. Ordinary household electric fixtures, waxed linoleum floors, wool blankets, wool, rayon, or nylon outer garments have no place in the operating room. Spark proof electrical equipment is essential. Furniture should be equipped with brass drag chains. The room must have cross ventilation so that waste gases are quickly diluted with air and removed. High humidity favors the dissipation of static charges.

3) Anesthesia apparatus and anesthetist: Only fresh pure anesthetic agents should be employed. It has been found that peroxides which form in old ether lower the ignition point and may thus increase the explosion hazard. With the exception of open-drop ether, use of a closed system type of apparatus decreases the risk. High humidity is easily produced in the machine. When explosive gases are employed, one should never flush the apparatus with oxygen but should add helium or air to dilute the mixtures quickly. The employment of the Horton intercoupler gives assurance that static charges accumulating on the machine, patient, operating table, or anesthetist will be slowly equalized without the danger of spark formation. The anesthetist should carefully safeguard his field of operation to make sure that no one accidentally touches his machine. Contact should be made with him first. He should avoid sudden movements which might cause static discharge. If possible he should keep in constant contact with the patient. Clicking together metal equipment is to be avoided.

Two recent developments in equipment may be of considerable help in lessening the explosive hazard in the operating room. The Lorhan-Webster Staticator is a device which has a warning signal to announce the presence of dangerous static charges in the area about the anesthetist. At the same time the apparatus drains off accumulating charges. An improved conductive rubber for anesthesia machines has been introduced to maintain static equilibrium in the anesthetist's field.

Today explosive mixtures have been replaced to a large extent by non-explosive agents such as nitrous oxide-oxygen, spinal, regional block, pentothal, or pentothal-curare. Unless an explosive mixture is indicated by the condition of the patient and by the operation to be performed, it is wise to select a method which avoids this hazard.

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## TREATMENT OF VERRUCAE WITH AUREOMYCIN*

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Relatively few skin lesions encountered, outside of some of the exanthema, are of viral origin. Those generally accepted as caused by the filterable viruses are as follows: Herpes simplex, herpes zoster, molluscum contagiosum, lymphogranuloma venereum, verruca vulgaris, exanthemata: variola, vaccinia, varicella, rubella, rubeola, and aptheous fever. Verruca vulgaris is the most frequent lesion of a chronic character in this group.

The etiology of verrucae has been investigated by many experimenters in the past and they have shown that the etiological factors in some instances were due to a filterable virus. Variote in 1893 and Jadasshn in 1895 reported effective inoculation experiments. Wile and Kinderly in 1919 injected sterile filtrates obtained from verrucae and produced localized lesions of hyperkeratosis which clinically and histologically were the same as verruca vulgaris. Other investigators have demonstrated incubation periods varying from four to six weeks, and in some instances as long as a year. This evidence is definitely suggestive of viral etiology for verrucae; however, other circumstances must be taken into consideration with respect to the susceptibility of the patient, age, and responses to forms of therapy. In many patients a focus of entry into the skin frequently pre-exists. This is especially true on the plantar surface of the foot where it is repeatedly subjected to trauma and where frequent mycotic infections are found. Other phases of response to therapy are recognized with particular reference to the response to suggestive therapy as reported by Block and substantiated by Sultzberger and Wolf. The frequent incidents of infection of young individuals are noted and may be due to the

* Aureomycin supplied through the courtesy of the Lederle Laboratory Division, American Cyanamid Company.

susceptibility to skin infections or to the lack of immunity. Immunity to the virus has been demonstrated which may be associated with the abrupt disappearance of lesions.

Recently, aureomycin has been added to the rapidly growing group of antibiotic drugs and it has been indicated to have definite anti-viral capacities. Six patients with verrucae were given a clinical trial with aureomycin. As it was felt that patients with a few or solitary lesions of the usual character would probably respond to the accepted forms of therapy, they were excluded and patients with multiple rapidly growing and spreading lesions, particularly those of the juvenile type and the filiform type, were considered for trial.

Case No. 1. Patient, L. B., age 30, white, male, had had a mycotic infection of the palmar surfaces of both hands incurred while in the South Pacific in 1943. He had received therapy for this at infrequent intervals since that date and had had only partial control of the infection. He was first seen for the infection of verrucae vulgaris on 4/13/49 when it was found that he had had numerous solitary and confluent filiform verrucae on both palmar surfaces of the hands. The lesions were more numerous on the right hand than on the left and there were few lesions of the right bearded area of the face. These lesions had developed in a period of three to four days previous to this visit. It was felt that the involvement of the bearded area of the face was part of the one disease incurred on the hands possibly through an autoinoculation of the face or through local areas of portal of entry following shaving or the like. This patient was given various forms of accepted types of therapy without any relief. On 7/20/49 the lesions were more numerous and painful and at the time there were twenty-seven lesions on the face and neck and over one hundred lesions on the right hand and six on the left. The patient had shown no improvement and was progressively developing more lesions so it was felt that a trial with aureomycin was indicated. Treatment with oral aureomycin, 250 mgm., three times a day was instituted. In forty-eight hours the lesions on the face and neck had started to scale off and had completely disappeared in seventy-two hours. In ten days of therapy the lesions on the right hand had scaled leaving approximately ten verrucae and these had been considerably reduced in size. One lesion remained on the left hand in seventy-two hours and this disappeared within the ten-day period. The patient received aureomycin, 250 mgm., three times a day for eleven days and then the dosage was reduced to 250 mgms. morning and night for a period of seven days after which the drug was discontinued. Following the interruption of therapy, the patient showed a slight elevation and roughing of the skin where the last and larger (parent) verrucae had been located. When last seen on 8/18/49, about one month from the initial therapy with aureomycin, there was no evidence of any verrucous lesions. The thickening of the palmar surfaces of the hands had improved considerably.

Case No. 2. C. G., white, female, child, 6 years, seen on 10/10/49, had multiple verrucae vulgaris of the juvenile type involving the forehead, cheeks, neck, and a few on the palms of the hands. She had had a few lesions on the forehead for approximately two years and in the previous week had been trying to pick these off due to ridicule of other children. Following this, these lesions became active and the aforementioned secondary lesions developed. On the initial visit, treatment with oral aureomycin was instituted giving 250 mgm. in the morning and 250 mgm. at night. She was seen four days later at which time the patient's mother stated that the lesions looked improved within twelve hours and real improvement was incurred in thirty-two to thirty-six hours. The bases of these lesions were flattened at the time of her visit on 10/14/49. The patient was then given fifteen (15) mgm. of aureomycin three times a day for a period of six days. Therapy continued along these lines and when seen on 10/23/49 all lesions had completely disappeared so that the skin of this child was considered to be normal.

Case No. 3. F. R., white, male, child, 7 years, with multiple juvenile verrucae involving both the face and the hands. The patient was given therapy consisting of oral aureomycin, 50 mgm. four times a day for four days, then three times a day for three days, and then two times a day for the remainder of the treatment. The patient was seen thirteen days following the onset of therapy at which time all lesions had practically disappeared. Recent follow-up of this patient failed to reveal recurrence of lesions.

Case No. 4. P. E., white, male, age 26, with fifteen penile verrucae. This patient had received several types of the usual method of treatment for penile verrucae without relief. The patient was then put on oral aureomycin receiving 250 mgm. three times a day for a period of nine days, and then 250 mgm. twice a day for a period of eighteen days. There did not appear to be too much improvement of the lesions during the early part of his therapy. Approximately thirteen days of treatment, a few lesions on the penis had disappeared particularly in the area of the sulcus. There did not appear to be any change in the lesions for approximately two weeks except for a slight decrease in the size during that time. In the following sixty days, a few of the lesions (five or six) developed a darkened necrotic base, then scaling off and disappearing completely. Aureomycin ointment used locally for three weeks has resulted in slow progressive improvement.

Cases 5 and 6 consisted of two male patients of the second decade in life who had multiple verrucae on the palmar surfaces of both hands. Both of these were of a flattened hyperkeratotic type. Both received 250 mgm. of aureomycin three times a day for a period of fourteen days without any particular response than arresting development of further lesions.

### Discussion

After review of the above-mentioned cases, it is felt that oral aureomycin appears to have anti-viral effects in the treatment of verrucae vulgaris, particularly the juvenile and the filiform type. The number of cases here are only significant as far as the positive results in the type investigated. Not enough cases of the other types of verrucae vulgaris have been studied to give a definite opinion. It is felt that in the rapidly growing type of verrucae vulgaris, aureomycin may not demonstrate curative effects but may arrest the spreading process.

### Summary

(1) Aureomycin appears to have defnite anti-verrucal value in the treatment of the filiform and juvenile types.

(2) Oral dosage appears to be within 250 mgm. three times a day for approximately three to four days; then 50 mgm. three times a day until a notable change has been made in the lesions.

(3) Dosage might be varied and better results obtained. Possibly an increase in the dose is indicated, but at the present time cost is frequently prohibitive.

(4) It is hoped this paper will stimulate further investigation.

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# PITYROSPORUM OVALE — A CAUSE OF BLEPHARITIS

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Chronic blepharitis is one of the most common eye conditions seen by the general practitioner, dermatologist and ophthalmologist. Usually, the ophthalmologist is consulted only after the condition has been treated by many methods and often after a period of months to years. Many causes have been postulated for this condition and many forms of therapy have been advised. Among other etiologic possibilities, dandruff has been mentioned in relationship to blepharitis and of late has been more fully explored. It is now established that Pityrosporum ovale plays an important role in the etiology of blepharitis.

In a discussion of causation of blepharitis, a consideration of the anatomy of the eyelid is necessary.

The margin of the eyelid is about 2 mm. in width. It is one of many places in the body where there is transitional epithelium. The part near the lacrimal punctum is rounded while the part lateral to the punctum is flat and has a sharp anterior and posterior border and between these edges there is a flat intermarginal zone. Therefore, the lid may be divided into 3 main zones.[1] 1. Inner zone (conjunctival glandular area). 2. Intermediate zone (Intermarginal Sulcus of Von-Graefe). 3. Outer zone which contains the cilia. We are interested mainly in the outer zone. In this area, the skin is irregular and vessels are completely absent except occasional deep ones. The roots of the cilia are surrounded with gelatinous material and a band of muscle fibers (Riolani's muscle) pass between the hair follicles at the lid margin. In the upper lid there are about 150 cilia while in the lower lid they number about 50-70.[2] In blepharitis there is a marked increase in vascularity, the vessels running perpendicularly.

Blepharitis has been divided by Parsons into two types. 1. Squamous — characterized by dry, flakey, or greasy scales and hyperemia of the lid margins. 2. Ulcerative — characterized by pustules involving the follicles of the cilia, crusts, ulcers, scales, and marked hyperemia. Ulcerative blepharitis in many cases is a sequala of the squamous type and usually is found in those individuals with chronic illness or who are in a debilitated state.

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Many textbooks on ophthalmology describe the flakes in the squamous type as resembling dandruff. After examination of many cases, it is my experience and that of others[3, 4] that not only are the flakes like dandruff but are dandruff. Dandruff is a term applied to a yeast-like fungus belonging to the class of oosporacea and commonly known as Pityrosporum ovale. Many[5] feel that this fungus is the cause of seborrheic dermatitis and that seborrheic dermatitis capitis in turn affects the lids. Thygeson[3] in 350 cases reported 100 cases which showed pityrosporum ovale in laboratory tests. Many other bacteria, especially staphylococci, were found but these were probably secondary invaders. The chief complaints in this condition are cosmetic — the patient seeking relief from the redness, crusting and scales. The symptoms of secondary importance which require relief are itchiness and lacrimation. However, it is these secondary symptoms which are the causes of the crusting and pustules as the patient by rubbing causes the secondary infection by contamination from the hands, unsterile handkerchiefs or towels. It is possible that the pityrosporum ovale may also cause allergic manifestations such as swelling, conjunctival injection, itch and lacrimation.[6, 7] The loss of cilia in the squamous type is not permanent but in the ulcerative type it usually is. This is because of the irrepairable damage done the hair follicles resulting in fibrosis due to pits of the cilia becoming filled with scar tissue.[1]

Refractive errors have been given as a cause of blepharitis but in my experience and that of others,[2] it has been found that by itself refractive errors alone do not cause this condition. Those who have refractive errors are prone to rub and massage the lids and so make an existing condition worse.

Those suffering from chronic diseases are apt to have blepharitis due to their inability to ward off secondary infections and because of poor personal toilet.

Treatment of lids alone with ointments, X-ray, ultraviolet or other methods has produced only temporary relief because the primary focus has not been attacked.

Dandruff on the lids is rarely primary, hence the treatment must be directed to the scalp and also to preventing contamination and re-infection. If squamous blepharitis is controlled, the ulcerative type and its complications of permanent loss of cilia, ectropion, and thickening and scarring of the lids become less of a problem.

Vitamin A by mouth, 10,000 U. daily, has been found to be beneficial as an adjunct to treatment. Vitamin A has been found to be essential for normal structure of epithelial cells, and is also known as the "anti-infective" vitamin.[8]

In the absence of Vitamin A, epithelial atrophy occurs and this is followed by a heaping up of the basal cells. The normal daily requirements of Vitamin A have never been definitely determined but Booker in 1938 reported 1400-2000 U. a as minimum requirement. Most authoritics recommend 5000-6000 U. However, Vedder and Rosenberg[9] (1938) reported doses of 100,000 U. in moderate sized rats showed no ill effects. Vitamin A is eliminated in the usual channels of excretion. Bile in the intestinal tract is essential for absorption of Vitamin A so that any condition that interferes with this may lead to Vitamin A deficiency. In many cases of blepharitis, a history of "stomach trouble" is obtained. These complaints should be investigated so that the treatment of the blepharitis may be more effective.

After observing for over 10 years 200 cases of blepharitis which varied in intensity and length of time (3 weeks to 15 years), favorable results were obtained by following a regime directed toward the removal of dandruff, prevention of secondary infection and contamination, and utilizing the therapeutic effects of Vitamin A. Some of the cases observed had been treated with ultra-violet and X-ray without much effect. However, when the scalp and lids were treated simultaneously, the condition was either completely relieved or so markedly improved as to cause the patient no further concern. Treatment of the scalp with ointments was not used in the cases followed but they may have a place in aiding the removal of dandruff.

The following cases are typical of the many cases seen:

*Case No. I*— White female, age 14, first seen in 1938 with red, itchy, scaly lids. This condition had been present about one and a half years in varying degrees of severity. Examination of the eyes showed no ocular pathology and there was no refractive error. Her scalp contained a great deal of dandruff. Her lids had previously been treated with several types of medication with no improvement. Under treatment for her scalp and lids, she improved rapidly and in six weeks was completely well. She has been seen several times in the past ten years with no recurrence.

*Case No. II*—White male, age 32, was first seen in 1947. He had a severe squamous blepharitis for over ten years. He had had many types of treatment including X-ray without much benefit. Examination of his eyes including a refraction was negative. His scalp showed a large amount of dandruff. Under treatment for both his scalp and lids, he showed marked improvement in a few weeks. However, he has not followed treatment rigidly and his condition is still present to a slight degree. He states that he has had more improvement than at any previous time.

*Case No. III*—White female, age 28, first seen in February, 1949, with a severe ulcerative blepharitis which had been present for over five years. Except for the lids, her eyes were essentially negative. She

had been under treatment for five years without relief. Penicillin locally and intramuscularly was used as well as treatment for her scalp. After the secondary infection had been cleared, she was placed on the usual regime followed in these cases. Her ulceration has completely cleared and her lids are markedly improved. Her lashes are now fully grown and she is completely well.

*Case No. IV*—White female, age 50, was first examined in 1947 complaining of red, itchy, scaly lids for six months. She showed dandruff to a marked degree. Under treatment, she was completely well in two months and when observed in 1949 had had no recurrence.

The following outline of treatment has been used with much success:

(1) Frequent head shampoos—every 4 or 5 days —with tincture of green soap at first and then any good shampoo or soap. The hair must be cleansed in such a manner that the water and shampoo which contain the pityrosporum ovale will not wash over the face and lids. The hair must be covered when taking showers. Barbers and beauty operators should be instructed to scrub their hands surgically clean with attention to their nails so as to prevent the transferring of pityrosporum ovale from one person to another.

(2) To prevent re-infection, the hair should be completely covered with a clean cap on retiring, fresh pillow cases or pillows covered with a fresh, clean towel daily.

(3) Hair should not be combed or brushed over face—hair covering the forehead should not be worn.

(4) Hands should be kept away from the lids unless completely scrubbed.

(5) Edges of the lids are cleansed daily with cotton pledgets soaked in a weak solution of boric acid, sodium bicarbonate (1%) or mild silver preparation. A fresh pledget is used for each lid. Loose lashes are removed.

(6) Mild antiseptic ointments containing mercury are used. Mercury has been found to have the best effects on pityrosporum. Penicillin or aureomycin is used when there is a marked secondary infection and in ulcerative blepharitis.[10]

(7) The eyebrows are frequently involved and so are treated the same as the scalp with the addition of a mercurial ointment.

(8) Capsules of Vitamin A—10,000 to 25,000 U. daily. Any physical disorder such as gallbladder involvement, anemia, glandular disturbances, refractive errors should receive adequate attention.

(9) After 3 to 4 weeks of this treatment, the antiseptic ointments and cleansing of the lids may be discontinued[11] but Vitamin A and frequent hair shampoos are continued.

(10) In place of antiseptic ointments, an ointment containing Vitamin A is used for several weeks. When new lashes are appearing, they should be trained to grow so that they will not turn in. When they have reached normal growth, all treatment may be stopped. Many patients have stopped treatment after only 1 or 2 weeks of Vitamin A with no ill effects.

## Summary and Conclusions

1. Most blepharitis is caused by scalp dandruff (Pityrosporum Ovale).
2. Treatment should be primarily directed to the scalp.
3. Personal toilet prevents recurrence and secondary infection.
4. A method of treatment is presented which has given favorable results.

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We have learned that you cannot put a patient's mind in a cast. The tuberculosis experience is an interesting example of this. The great problem of the tuberculosis sanatorium is people leaving against medical advice. We have been foolish enough to expect patients to rest idly in bed and not to worry, but worries about families, jobs or money, go round and round in their heads until they decide to give up treatment and go home. — Howard A. Rusk, M. D., Nat. Foundation for Infantile Paralysis.

# MALROTATION OF THE BOWEL*

## Report of a Case

Robert W. Belknap, M. D., and Ralph C. Powell, M. D.
(From the Miles Memorial Hospital, Damariscotta, Maine)

There is surprisingly little in the Standard textbooks to which we have had access concerning the condition of congenital malrotation of the bowel. It is, however, well described by Ladd and Gross.[1] We do not purpose in this report to go into the embryological basis for this malformation, but would refer those interested to the above referenced monograph.

Case: Baby R. G. Was born at the Miles Memorial Hospital, November 11, 1949. Delivered by one of us (B). Birth weight was 8 lbs. 6 oz. At routine pediatric examination, Dr. Philip H. Sylvester reported him a normal baby. He was not nursed but put on newborn formula (salt, glucose and gelatin) and later S. M. A. November 15 it is noted that he vomited once. He was taken home on November 16. About three days later, he began to vomit. Vomiting was somewhat projectile in character. Several changes of formula gave no improvement. He was readmitted November 26. Weight had dropped to seven pounds. He continued to vomit. There were a few small stools. There were well-marked peristaltic waves from left to right across the epigastrium. One consultant thought he could feel a pyloric tumor. A barium stomach film was made. While there was no radiologist available at that time it was thought that very little barium left the stomach. He was given fluids and glucose by clysis.

On November 27, first operation was done: Ether anaesthesia. Small epigastric incision. Pylorus located. There was no evidence of hypertrophic stenosis. There was a partial constriction by an abnormal band from the under surface of the liver. Binding down the pylorus which could not be brought up into the incision as usual. Band divided.

Following operation he seemed to retain a little more formula and there was slightly more bulk to the stools.

He continued to vomit and was weak and listless. On December 3, he was given a transfusion of 90 c.c. whole, group B blood through the anterior fontanelle by Dr. Rufus E. Stetson. Dr. Clark Miller had reported on the Stomach film: "Films of the abdomen following the ingestion of barium show moderate dilatation of the stomach, and great dilatation of the second portion of the duodenum. Apparently no barium passes the junction of the second and third portions of the duodenum. An abnormally small amount of gas is present in the intestinal tract and it is apparently confined to the distal large bowel. Impression: Duodenal atresia." (Fig. 1)




Fig. 1. Showing dilatation of stomach and duodenum and obstruction of second portion of duodenum.

Weight had dropped to 6 lbs. 4 oz.

December 5 a second operation was done after study of Ladd and Gross on congenital anomalies.

There was some gaping of the epigastric incision. This was walled off with adhesive tape and a right para-umbilical incision made. The picture at first glance was confusing. Pylorus was located. There were a few deposits of fibrin about region of previous division of band. The duodenum was dilated. No ligament of Treitz could be identified. A portion of large bowel was found in the usual location of the transverse colon but this was found to be the caecum. There was nothing to represent the right colon in its usual location and the caecum was attached in the right upper quadrant in such a manner as might produce obstruction of the second portion of the duodenum. There was a partial volvulus of the mid-gut.

* Read before the Lincoln-Sagadahoc County Society, January 23, 1950.



Fig. 2. Postoperative film, 3 hours.

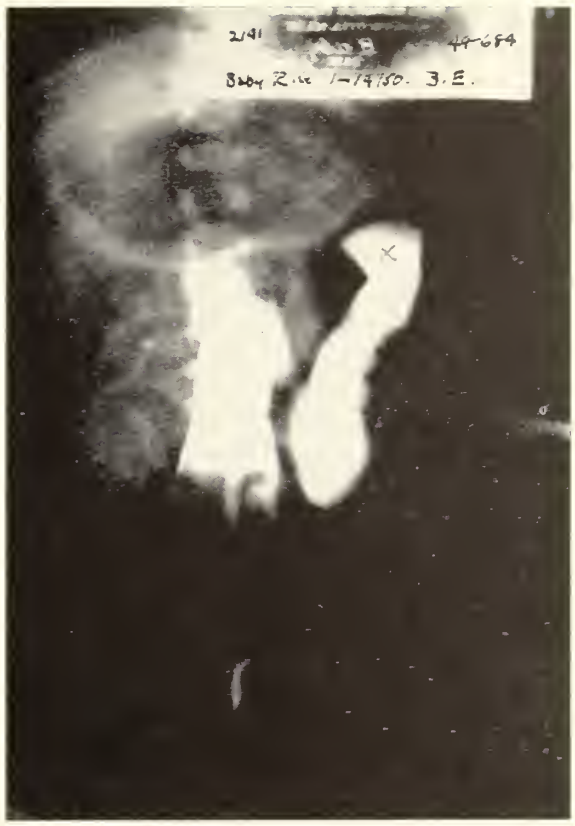


Fig. 3. Barium enema showing proximal colon in L.U.Q.

The mesenteric veins were distended and the bowel itself suffused and darker than normal. This volvulus was unwound with marked improvement in the color of the small bowel. The root of the mesentery extended over only a small extent of the upper posterior abdominal wall and the whole bowel, small and large, could be eventrated. The right lateral attachment of peritoneum about the caecum was divided and the caecum could then be stripped medially so that the right colon came to lie to the left in the usual location of the splenic flexure. The appendix was removed, both because it seemed to enter into the constriction, and because it was felt that should it inflame at some future time it would be most difficult to reach. It was now possible to visualize the whole course of the duodenum which was entirely intraperitoneal and unobstructed.

Following operation he retained most of the feedings with only occasional vomiting, and began to have normal stools. He was discharged December 19, weighing 7 lbs. 14 oz. There was also some separation of the skin incision of the second operation. Through his whole course he ran an irregular, up and down fever attributed to dehydration.

On January 13, 1950, a recheck of the G.I. tract with barium was done: "Stomach fills normally. There was a prolonged pyloric spasm at the time of examination and no barium passed through the pylorus until at least an hour. Films at 3 and 4 hours show a normal distribution of the barium in the duodenum and small bowel." (Fig. 2)

Barium enema, January 14, shows the proximal colon in the left upper quadrant. (Fig. 3)

The radiologist reported that by fluoroscopy there was paralysis of the left diaphragm, cause unexplained.

Parents report that on January 20, weight was increasing and on May 1st weighed 18 lbs.

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The most important factor in the development of the infant mortality rate is the standard of nutrition of the people and the most important factor in the tuberculosis rate is the standard of overcrowding. — S. Leff, Med. Officer, Feb. 4, 1950 — Quoted in *Am. J. Pub. Health,* April, 1950.

# FIRES IN HOSPITALS AND INSTITUTIONS — A WONDERFUL SERVANT, A HARD MASTER*

Since early times the threat of fire has loomed before civilization, endangering both its buildings and the lives of its inhabitants.

Records show that the largest number of fires are caused by the four following causes:

| | |
|---|---|
| Smoking, Matches | 21.0 per cent |
| Electrical, Fixed Services | 10.8 per cent |
| Spontaneous Ignition | 8.7 per cent |
| Rubbish | 6.3 per cent |
| | 46.7 per cent |

The remaining 53.3% are scattered among 21 other miscellaneous causes.

Fires by class of institution are as follows:

| | |
|---|---|
| Sanitariums | 8.1 per cent |
| Orphans' Homes | 8.1 per cent |
| Old Age and Convalescent Homes | 8.6 per cent |
| Insane Asylums | 9.2 per cent |
| Hospitals | 47.3 per cent |
| Miscellaneous | 18.7 per cent |
| | 100.0 per cent |

Let us analyze the cause of these fires in order of their frequency.

*Smoking:* As in almost all classes of property, smoking and the careless use of matches, heads the list of causes of fire each year. The smoking problem has developed from a formerly minor hazard until, of all fires for which a cause is known, one fire out of every five, or over 20% has been the result of carelessly handled matches and cigarettes.

The control of fire hazards caused by smoking must be made the individual responsibility of every hospital official to eliminate this peril. Where smoking cannot be abolished, it may be possible to provide designated and supervised areas where it may be permitted with reasonable safety. WATCH THAT CIGARETTE!

*Electrical Hazards:* Second on the list as an important cause of fires and which demands careful attention of hospital and institutional authorities, is that known as "electrical" or "electrical fixtures."

Electrical fires—such as those due to defective wiring, short circutis, misuse of electricity or improper equipment installation—must not be confused with electrical breakdown or overheating of power consuming appliances. Worn or frayed cords; cords tacked up; heating irons without pilots; over-fused circuits; wiring installed by home mechanics; the use of the so-called separable plugs where any number of extension cords or lights can be connected into one outlet are some of the most common causes of electrical fires. Defective electrical fixtures total 10.7% of the known fire causes.

*Spontaneous Ignition:* Looms as the third largest cause, being responsible for 8.7% of the fires. Materials subject to spontaneous ignition in institutions include rubbish, agricultural products, oily rags, wood and sawdust. These materials when stored for any length of time, must be guarded carefully to eliminate any possibility of spontaneous heating. Effective ways of offsetting the danger of spontaneous ignition are the limitation of oily rags and waste; properly enclosed metal containers for oily materials; proper ventilation for storage areas; and proper storage techniques for coal or other materials subject to heating.

*Rubbish:* Is the fourth on the list, responsible for 6.3% of the fires. It is not rare for institutions to store rubbish before proper disposal. Boxes, barrels, and piles of refuse are often stored near boilers. There are many cases on record where rubbish, piled near boilers instead of being burned in outside incinerators or placed in safe locations, enter reports as the cause of the fire.

Other common threats to safety from fire are those caused by the ignition of greases and flammable liquids. Case after case of the ignition of flammable liquids or of grease burns its way into fire records.

*Fires From Heating Equipment:* Seventh in the list of fire causes, generally imply either an inadequate or unsafe installation of apparatus or careless use of it. Heating plants must be cared for properly and inspected thoroughly at regular intervals to insure protection and good service. When heating plants are forced beyond their capacity they may ignite nearby combustible materials. Many institutional heating plants lack safeguards, such as thermostatic controls to prevent overheating. Frequently, fires in defective chimneys and flues are attributable to an overheated furnace.

Another hazard, although it does not itself constitute a major threat to hospital structures, presents a serious life safety problem. This hazard is the use of oxygen and croup tents, and anesthetic gas. Many accidents have occurred while this equipment was being used several of which resulted in the death of the patient being treated. Most of these deaths were caused by oxygen, flammable anesthetic gases, or other combustible vapors, igniting and exploding or setting fire to the bedding, the oxygen tent, or other patient enclosures. Examination of hospital fire rec-

* A paper presented at the Maine Hospital Association Meeting at Portland, Maine, on December 2, 1949.

ords where loss of life was involved reveals the serious extent of this hazard.

Of equal interest in this discussion of institution fires is the element of the time of occurrence. Slightly over half the fires (52.7% reported) have occurred at night between the hours of 7 P. M. and 7 A. M. Because of this proportion of night fires it is especially important to install automatic protection devices.

Automatic fire detection systems and water flow alarms connected to sprinkler systems to give warning of an outbreak of fire; and automatic sprinklers to hold a fire in check until the arrival of the public fire department, are most essential where large numbers of helpless people sleep in the same building.

This is especially true where hurried evacuation would be dangerous and difficult under fire emergency conditions.

Dependence upon the human element for the discovery of a fire has proven enitrely too unreliable to guarantee life safety for the patients. Even if there is a night watch the danger that a fire will gain headway before he discovers it is only slightly diminished. The life responsibility is too great to leave to chance that human vigilance will be maintained at all times, and in all places where a fire may occur.

In 165 cases on file, the discoverers of the fire were hospital employees or members of the hospital staff, doctors, supervisors, or nurses, or maids, or janitors. As these groups include several persons on duty at all times in various areas of each hospital or institution it is important to recognize that they constitute the greatest single unit for fire detection. On the other hand, patients or inmates are seldom in locations where fires are most likely to start and therefore, cannot be relied upon for fire detection. It is necessary that staff members and other hospital employees be trained in what to do in case of fire. They must know their duties in cases of emergency.

*The most important single factor at the time of a fire is the immediate sounding of an alarm.* A moment of panic or a slight delay in sounding an alarm and notifying the fire department may be just long enough to give the fire fatal headway.

In considering fire protection measures to prevent flames from destroying property and life, it is important first to study the place of origin of hospital fires and to examine the circumstances under which these fires begin. The most important lesson from reports of fire origins is that danger most often stems from service rooms or service buildings. Of the fires reported 51.5% began in closets, laundries, elevator shafts, boiler rooms, kitchens, workshops, or linen rooms. In these areas fires are most likely to start from heating or cooking appliances, electrical equipment and other sources where heat may be generated. Certain materials quite often ignite spontaneously, particularly in closets without ventilation. Flames often begin in storage areas, basements, or furnace rooms. The protection of service areas is of utmost importance. Other locations where fires start are: outside areas 15.5%, inmates' rooms 11.4%, operating rooms 3.3%, nurses rooms 5.8%, miscellaneous known 11.9%.

Fires originating on roofs of institution are still prevalent, though not nearly so common as formerly. Of the fires reported since 1931, 4.3% originated on roof tops. No doubt this decline is due in part, to fire resistant roofing materials which have replaced wooden shingles to a large extent. But many institutions—renovated from old frame houses—still maintain these fire-breeding wooden shingles.

*But what of the buildings themselves?* In the past few years hundreds of so-called rest homes—convalescent, charitable, and old age—have sprung up in every section of the country. Most of them are without adequate fire protection facilities or even fire exits. Aged and helpless citizens pay out their small old-age assistance allowance for shelter entirely lacking of fire protection.

From the record it is evident that only a small proportion of the buildings involved in fire were of fire resistive construction. The greatest number had masonry walls but combustible construction for floors, roofs and interiors. Combustible interiors make fire protection of utmost importance because, as most fires start inside of buildings, the masonry walls provide no security against the horizontal or vertical spread of fire. Fire stops for all openings in floors and walls, safe construction and arrangement of stairways and exits are only a few of the important structural features that must be considered in designing a fire safe building.

*Loss:* Property losses in hospital and institution fires are serious. In the aggregate they amount to some $5,500,000 in our country each year.

The property loss, while serious, can be replaced, but no one has as yet devised a way to replace a human life. Until hospitals and institutions cease to burn at the rate of three a day—further institutional fire prevention warnings are imperative. It readily can be seen that hospital fire prevention and life protection is a vital element of responsibility of institutional management. No matter how good the care of the sick, destitute, or aged may be, without adequate fire protection this care in a short time can be rendered worthless. There can be no doubt that society wants adequate protection and care of its institutionalized patient but too often tragedy precedes protective actions. It must be emphasized again that fire protection regulations and standards must be adequate and that institutions must adhere strictly to these standards to insure the continued safety of its patients and inmates. If the same thought and study

had been given to fire protection in the past that has been given to the prevention of epidemics the problem would have been solved long ago.

*Planning For Fire Safety:* Fire safety usually does not necessarily involve any considerable expense, but only intelligent thought and action before the fire. Information on safe practices is available in the following important publications of the National Fire Protection Association:

(1) Building Exits Codes.
(2) Building Exits for Fire Safety.
(3) Fire Prevention and Protection as Applied to Hospitals.
(4) Fire Exit Drills and Alarm Systems.
(5) N. F. P. A. Handbook of Fire Protection.
(6) Fire in Hospitals and Institutions.

The National Safety Council, through its publicity department also has available numerous publications directly relating to the subject of fire-safety in hospitals and institutions. It is hoped that each of our hospitals and institutions will obtain this valuable data. Only by careful planning as suggested in the various pamphlets will our hospitals and institutions be safer for the patients.

*Building Construction:* Fire resistive construction is desirable for all hospital and institutional buildings, but the use of building materials that will not burn is not of itself any guarantee of fire safety. The proper use of materials and the over-all design of the buildings are of greater practical importance than the selection of the particular building material to be used. In any case, the design should be such as to prevent the spread of fire, smoke and gases from its point of origin. Most important is the protection of stair and elevator shafts so that fire in a basement or lower floor will not spread to the upper stories. The spread of smoke and fire gases can be just as disastrous as the actual fire.

*Exits:* There should always be at least two safe means of escape from any area, so that in case a fire starts in or near one exit, it still will be possible to escape by an alternate route. Exits should be remote from each other; two stairways leading to a common street floor lobby may both be blocked by a single fire. Outside fire escapes are at best of limited value and should be recognized only to correct exit deficiencies in old buildings. In areas occupied by bed patients exits should be wide enough to accommodate hospital beds. Exits on the same floor level or ramps avoid the necessity of carrying patients down stairs in case of an emergency.

*Segregation of Hazards:* Boiler rooms, kitchens, laundries, carpenter and paint shops and similar rooms having more than the ordinary fire hazard should be so arranged as to minimize the danger of fires spreading to other areas. The very best arrangement is to have such hazardous occupancies in separate buildings. Where it is not feasible to have hazardous occupancies in separate buildings, it is necessary to segregate the hazardous area with fire resistive walls and ceilings, fire doors at all openings and automatic sprinkler protection so as to give reasonable assurance that any fire starting in the room will not spread.

*Extinguishing Equipment:* Automatic sprinkler protection is recommended for all hospital and institutional buildings of combustible construction and also to protect hazardous areas in buildings of fire resistive construction. Hand chemical fire extinguishers should be provided in all cases, selecting those types suitable for the class of fire likely to occur at any location. Standpipes and hose systems are important, particularly in high buildings. There should always be a good water supply available for the fire department with hydrants located conveniently to all buildings.

*Alarm Systems:* Some form of fire alarm system is essential, particularly in large institutions. It may not be necessary or desirable to have gongs which will excite bed patients, but there should be a reliable alarm system to notify nurses and other employees in case of any fire. It is also of utmost importance to have reliable facilities for calling the nearest municipal fire department, preferably by means of a standard fire alarm box. Automatic fire detection and alarm systems are valuable. They provide prompt notification of any incipient fire in store-rooms, attics and other unoccupied areas.

*Drills and Training:* The record of fires in hospitals and institutions shows in a very great number of cases that when the fire occurred no one knew just what should be done. If every hospital employee knows how to sound an alarm; understands the method of operation of extinguishers; and is drilled in the proper procedure in case of fire, the possibility of serious consequences when a fire does start will be greatly lessened. To be effective, every new employee must have proper fire fighting instruction. Fire drills should be repeated for everyone at periodic intervals. If all employees understand the importance of fire prevention the probability of a fire starting will be lessened as well as the extent of its probable consequences.

*Heating, Ventilating and Air Conditioning:* It is generally understood that heating equipment must be safely installed. However, the dangers of ventilating and air conditioning equipment is frequently overlooked. A system designed to circulate air throughout the building may, unless properly safeguarded, be the means of rapidly spreading fire and smoke into every section of the structure. A small smoky fire in one room might thus have fatal results throughout the

building. A system designed with noncombustible ducts properly sealed where they pass through walls or floors; with automatic fire dampers installed where they pass from main vertical ducts; noncombustible intake and filters; and noncombustible room to house all operating equipment; suitable manual emergency stop control with all electric wiring and other associated equipment of approved design properly installed, together with a good smoke detection system forming an integral part of the systems, will prevent dangers.

*Electricity:* The National Electric Code as developed by the Electrical Committee of the National Fire Protection Association and accepted throughout the country should be observed in all electrical installations.

*Smoking:* The records show that careless smoking is the most frequent cause of hospital and institution fires. A complete prohibition of smoking, if effectively enforced, would eliminate this hazard. Experience shows that any attempt at a general prohibition is likely to lead to surreptitious smoking in out of the way locations resulting in an increased fire hazard. The only practical measure is to supervise and restrict smoking to safe locations.

*Anesthetic Gases and Oxygen:* Anesthetic gases used in hospitals are combustible. They are explosible when mixed with air in certain proportions. Oxygen does not of itself burn, but it supports combustion and the slightest flame in an oxygen atmosphere may spread with explosive rapidity. The major hazards associated with operating room activities and flammable gas (anesthesia gases and oxygen) are: combustible anesthetic agents and disinfecting agents; hazards of electric shock and spark; electrostatic spark discharges; electric wiring equipment, special devices and appliances; operating room furniture; and improper ventilation of rooms where flammable gases are used. Elimination or safe guarding of these most common major hazards as outlined by the National Fire Protection Association will greatly lessen the possibility of a catastrophe.

*Housekeeping and Maintenance:* Good housekeeping and proper maintenance of equipment of all kinds are the most important factors in the fire safety of any hospital or institution. Good housekeeping includes elimination of all unnecessary combustible materials from every part of the building, particularly attics, basements, and storage spaces. Every piece of mechanical and electrical equipment must be properly maintained to lessen fire hazards. Extinguishers must be recharged periodically; automatic sprinklers and alarm systems must be checked at regular intervals. All this should be the specific responsibility of hospital management. It is also desirable, whenever possible, to have an independent outsider make periodic fire prevention inspections such as are being done by insurance organizations and fire departments.

In conclusion—*Eternal Vigilance is the Price of Safety.*

We wish to acknowledge our indebtedness to the National Fire Protection Association, 60 Batterymarch Street, Boston, for data obtained in preparing this paper. Complete codes and standards for all phases of fire protection are also available for this Association at nominal cost.

## REVISION OF CONSTITUTION AND BY-LAWS OF MAINE MEDICAL ASSOCIATION

The Committee on Revision of Constitution and By-Laws was appointed at the June Annual Session in 1948. The Maine Medical Association is at present a voluntary association of all its members; a loose sort of partnership or joint enterprise. The question was raised whether it would not be better to have it organized as a non-profit corporation. At the same time it seemed useful to have a study of the existing Constitution and By-Laws with the idea of improving or clarifying them where possible.

Because of the formalities necessary for any amendment to the Constitution no action could be taken at the Annual Session in 1949 except to offer a motion for repeal of the Constitution and lay that motion on the table to the annual meeting this year.

The Committee has held three meetings and also submitted proposed changes for discussion by the House of Delegates at its November and April meetings.

Studies of the Constitution and By-Laws of other states have been made and the Committee has discussed features therein contained.

The Committee has decided that there was much advantage to the formation of a corporation and no detracting disadvantage. We have recommended revised Constitution and By-Laws which are now being mimeographed and sent to all delegates and alternates.

If the members agree with the Committee on incorporating, this may be done by proper votes at the Annual Meeting although actual operation under the new organization may be postponed a time for the legal formalities of forming the corporation. The Association may vote to leave the time of the change to corporate operation to the discretion of the Council.

Stephen A. Cobb, *Chairman,*
*For the Committee.*

# WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT THE MEDICAL ASPECTS OF ATOMIC WEAPONS AND ATOMIC WARFARE

By: The Committee on Emergency Civilian Defense of the Maine Medical Association,* † and with the approval of the President, the Council and the House of Delegates of the Maine Medical Association.

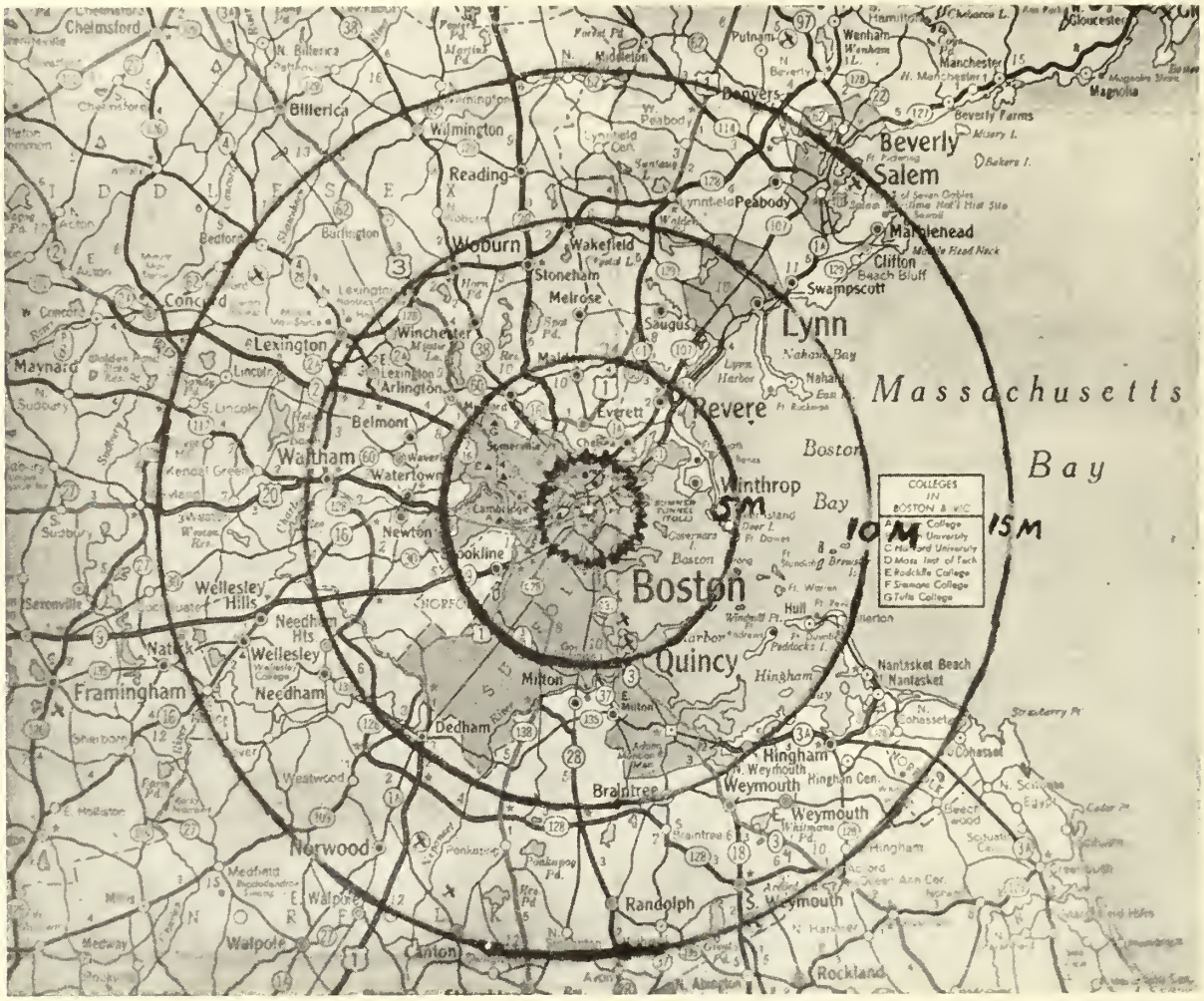



FIGURE 1

On the map of Greater Boston and surrounding regions, above, have been shown comparative areas of probable complete and of probable partial destruction in the event an A-bomb or one of the tremendously more lethal hydrogen bombs were to be exploded over Beacon Hill. The radius of complete or very heavy destruction would extend out from ground zero to the inner saw-tooth line for the former and out to the 10 or perhaps to the 15 mile mark for the latter. Slight damage would extend out for a radius of four miles after the detonation of an A-bomb and would likely extend out for a distance of some 25 miles in all directions from ground zero, after an H-bomb burst. Fatal burns occurred as far out as 5,000 feet at Hiroshima and experts have estimated that lethal burns to personnel in the open would extend out to a radius of 20 miles after the detonation of an H-bomb.

The atomic bomb has not greatly changed basic military principles; therefore, future warfare will be orthodox in principle but will vary in detail. It can be anticipated that a third world war would be ushered in with the detonation of atomic or hydrogen missiles over thickly settled vital industrial areas (figure 1) and that such an attack against us by an enemy nation would be a surprise one launched without warning and without a formal declaration of war.

* Charles W. Steele, M. D., F. A. C. P., Chairman; Ralph A. Getchell, M. D., F. A. C. S., Harry Butler, M. D.

† Since approval for this series of articles was given by the President, the Council and the House of Delegates at the Fall Clinical Session of the Maine Medical Association held at Waterville in November, 1949, and since these articles were written, the Committee on Emergency Civilian Medical Defense has been enlarged by the appointment of the following members: Albert W. Moulton, M. D., Garfield G. Defoe, M. D., Frederick C. Dennison, M. D., Harold E. Small, M. D., M. Allan Torrey, M. D., John B. Thompson, M. D., Roscoe L. Mitchell, M. D., and Clarke F. Miller, M. D.

This surprise attack with atomic or hydrogen missiles would be followed by airborne invasions — probably over water. Undoubtedly, such an attack upon this country would be followed by counter attacks and counter invasions with all efforts of our military forces directed toward breaking the enemy's will to resist and toward a final advance of our ground troops into enemy territory to occupy it.

In the past, the probability that the armed forces of an enemy nation might be able to successfully invade the United States has seemed very remote; but the development of the long range bomber, the "Schnörkel" submarine equipped to launch guided missiles, the atomic bomb, and, last but not least, the threat of the hydrogen bomb have abruptly nullified the two great oceanic barriers on which we have heretofore relied for protection. Henceforth, it must be assumed that a strong, well prepared enemy nation might use long range aircraft to carry atomic bombs over our industrial centers or might direct long range guided missiles with atomic warheads from the decks of submarines against our shores anytime within the foreseeable future and with a reasonable chance for success unless we build and maintain a strong military and civil defense organization within our own borders that can adequately cope with the initial phases of such an enemy attack.

Major General R. W. Bliss, The Surgeon General of the Army, in his introductory remarks to "What You Should Know About The Atomic Bomb,"[1] has summed up the present state of affairs with great clarity in the following words: "Much has been said of the need for public understanding of the new Atomic age. A citizen ignorant of the vast opportunities and of the crushing responsibilities inherent in the release of nuclear forces is courting annihilation. In the future only the informed nation will be safe."

"Yet, important as it is for the average man to measure his obligations toward the future, it is far more important for the medical man to understand his. The responsibility of the doctor for the safety, for the sheer survival of great masses of the population, if a new conflict comes, is gigantic. For nobody seriously doubts that the next war will be fought with atomic bombs many times more devastating than those dropped on Japan. . . . Though we fervently hope that there will not be an atomic war, we cannot assume there will never be one; on the contrary, we must act as though one were certain. We cannot leave to chance, or to hurried last-minute action, the technological preparations which alone will cut down the enormous casualties if these new bombs are dropped upon closely packed civilian centers."

"We are doing everything in our power to anticipate such a catastrophe by study, by training, and by research, by planning and by special organization of our medical forces. Through these efforts we seek to acquaint all civilian physicians of the procedures that will be necessary in time of emergency."

"They (our efforts)* consist, in the main, of utilizing every item of data and experience gained in the manufacture of the bomb, in its use at Hiroshima and Nagasaki, at Bikini, and recently at Eniwetok. We can say, even at this early stage, that our population need not be defenseless. The trained combination of nuclear physicists, engineers, and medical men can operate to protect our Nation if it is ever attacked."

"We hope that every doctor, in and out of the Army, will take this message to heart, and will cooperate with us in a steady improvement of the defenses which we know we must prepare."

It should be obvious from the above quotations that Major General Bliss has summed up the situation which confronts the people and the doctors of our nation in a most concise and clear fashion. The Committee on Emergency Civilian Medical Defense of the Maine Medical Association is of the opinion that the time has come for an over-all picture of the present thinking on the subject of atomic warfare to be made available to the physicians and surgeons in this State of Maine; and, therefore, with that objective in mind, your Committee on Emergency Civilian Medical Defense has prepared this series of articles entitled: "What Every Maine Doctor Should Know About The Medical Aspects of Atomic Weapons and of Atomic Warfare," and "What Every Maine Doctor Should Know About The Defenses Against the Atomic Bomb."

The population of every great city would be faced with the greatest emergency in its history should an atomic bomb be unexpectedly detonated over it one day in the future (figure 2). There is no known way at present of protecting those in the immediate vicinity of the zero point of an atomic explosion; but it is equally true that the entire population would not be wiped out. Furthermore, much can be done to help the survivors; for many lives may be saved by widespread knowledge among physicians of the therapeutic measures that can be of value in the treatment of casualties and by a general understanding of preventive measures which can be taken by the general population to minimize the injurious effects of an atomic explosion.

The atomic explosion differs from an ordinary bomb blast in only two respects. The detonation of the atomic bomb generates a crushing wave of high pressure which greatly extends its range of destructiveness over that of any of the known high explosive missiles, and the former liberates an enormous quantity of electromagnetic radiations and neutrons. The radiant energy covers the whole range of wave lengths from infra-red, through visible light to ultra-violet

* Parenthesis are the writers and not Major General Bliss.



FIGURE 2

Aerial view looking east from T. Bridge to bank building after the detonation of the atomic bomb over Hiroshima on 6 August, 1945.

light, X-ray and gamma radiations. This radiant energy is divided into two types: ionizing and non-ionizing and it is the former that caused the most important types of injury noted at Hiroshima and Nagasaki. The four known types of radiation which occurred in the immediate area of the atomic bomb blasts were gamma radiations, neutron beams, beta rays and alpha particles. The characteristics of these four types of radiations and the type of injury to human tissue each type can be expected to produce, will be discussed later when radiation sickness is described.



FIGURE 3

Hiroshima before and after bombing area around ground zero. 1,000 foot circles. (A. A. F. Photos.)



FIGURE 4
Kondya Street in Hiroshima as it appeared before the bombing.

Neither the exact number of atomic explosions which have been set off to date nor the efficiency of some of the latest bombs are known outside military and government circles. However, an evaluation has been made of the first five atomic explosions and much of that information has been released in unclassified publications.[1, 2]

The first, fourth and fifth atomic bombs were set off under experimental conditions and do not immediately concern us here. The second bomb was dropped 6 August, 1945, on the city of Hiroshima (figure 3). Somewhat over four square miles of this town were almost instantly and completely devastated while it is estimated that 66,000 persons were dead or missing and an additional 69,000 were injured (figures 4 and 5). On 9 August, 1945, the third atomic bomb was exploded over Nagasaki (figure 6). One and a half square miles of the city were totally destroyed and approximately 39,000 of the city's population were dead or missing and another 25,000 were injured.

## Effects Upon People

The injuries inflicted upon people by such an atomic bomb explosion have been divided into four general categories:[2]

1. Those produced by the pressure wave set up by the initial blast;
2. Those caused by trauma inflicted by debris from wrecked buildings;
3. Those caused by burns either from the flames of burning buildings, or from the flash burns produced by radiant heat from the initial bomb blast;
4. Those caused by nuclear radiation, either directly from the initial radioactive fission products or through contamination with residual unfissioned material in the area.

In cases of a high air blast, as in Japan, some 15 to 20 percent of the fatalities would be caused solely by nuclear radiation. The remaining 80-85 percent would be caused by the blast and the primary injuries suffered in the collapse of buildings and from the various types of burns.

## Trauma

The types of traumatic injuries with the percentage of each in a group of patients treated at a military hospital were:[3] — 11.5 percent had fractures, 53.8 percent showed contusions, and 34.7 percent suffered from lacerations — caused by flying glass in the majority of the later instances.



FIGURE 5

Kondya Street in Hiroshima as it appeared after the detonation of the Atomic bomb on 6 August, 1945. (The picture was taken at a spot 750 meters from the center.)

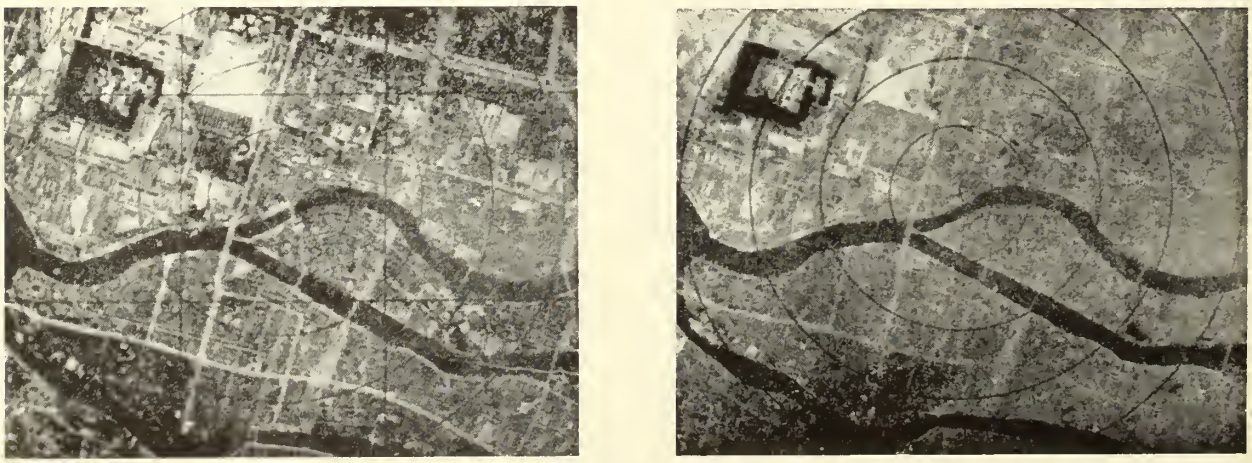


FIGURE 6

Ground zero at Nagasaki — Before and after bombing. 1,000 foot circles. (A. A. F. Photos.)

The blast created by the mechanical force of the atomic explosion built up a high pressure wave more slowly and did not have the triphammer blow effect of high explosive bombs. Consequently, autopsies on the early victims failed to show evidence of direct blast damage to the lungs or to the internal organs. Only a total of 17 ruptured ear drums were reported at Hiroshima and 22 at Nagasaki.

On the other hand, indirect trauma was known to have caused much damage. Windows were broken as far away from the zero point as 20 km. Wooden buildings were completely destroyed within a radius of 2.4 km. about the center. About 60 percent of the survivors sustained mechanical injury between 500 and 1,250 meters, and the incidence of such injuries did not begin to fall off until the distance from the center exceeded 2,700 meters. The fatal injuries were confined almost entirely to the zone of complete destruction. The exact proportion of the total mortality that was caused by traumatic factors will never be known since fire swept both cities within a half hour and before rescue operations could be instigated.

The British have estimated that a bomb similar to the one used at Nagasaki, if exploded at the same height over a city such as London, would cause complete collapse of normal buildings for a distance of 3,000 feet from the center, damage all houses beyond repair to a distance of one mile, render houses uninhabitable without extensive repair to a distance of 1.5 miles, and render houses untenantable without immediate repair to a distance of 2.5 miles from the center.[3] In other words, such a bomb over London would completely wreck 30,000 houses, badly damage 35,000 more and damage another 50,000 to 100,000. Where the density of the population was one person per 1,000 square feet, such an atomic bomb would kill 75,000 people and injure another 50,000 to 75,000 persons. The tremendous blast effect of the atomic bomb is well illustrated by comparing this with a 500 lb. bomb dropped in the same area that could be expected to cause a mortality of 6 people and a blockbuster that could be expected to cause a mortality of 30 persons.

From estimates similar to this one above made by British experts and from the known facts about the actual property damage and the approximate number of casualties at Hiroshima and Nagasaki in Japan, it would seem reasonable to assume that a similar "baby" type atomic bomb detonated high above some one of our Maine cities such as Bangor, Lewiston-Auburn, or Portland would:

1. Kill 30,000 to 40,000 people.
2. Seriously injure an additional 25,000 to 40,000 persons.
3. Instantly and completely destroy 1.5 square miles of the city's buildings.
4. Seriously damage the rest of the buildings within an area of four square miles.

The extent and severity of the damage to buildings and to personnel that will be caused by the detonation of any atomic bomb are dependent to a considerable extent upon the size of the missile, the height above the target at which it is exploded and the topography of the ground. In general, the larger the bomb the greater is the extent of the destruction it will cause, but two small bombs will produce more damage than will a single atomic bomb of equal weight. An atomic missile exploded near the ground will not produce as much blast damage as one detonated some 2,000 to 3,000 feet above the target; whereas, one set off at much higher altitudes will cause less damage because much of the blast is dissipated into space. Finally, the damage to buildings and to personnel is much greater when the terrain is relatively flat than it is when the ground is rough and hilly. Therefore, an atomic bomb exploded in the air at the same height would be expected to produce more damage to buildings and cause injury and death to a larger number of persons when exploded over Portland or Lewiston-Auburn than would be the case if a similar sized missile was detonated over Bangor as the terrain is much more hilly in and around the latter city than it is in and around the former two cities.

Figure 7 is an air photograph of Portland. The intersection at Congress and High Streets has been selected as the zero point for a high air burst of an atomic missile. Circles on the picture indicate the distances from the epicenter and the saw-tooth lines indicate the extent of zones of very heavy and heavy damage that would be produced by the so-called "baby" type atomic bomb used at Hiroshima and Nagasaki. The A-bomb radius of complete destruction would extend out for a distance of 1½ miles (figure 7). Extent of the areas of moderate and of light damage are not shown but would extend out for two and a half miles beyond the boundaries of greater Portland as shown on figure 8.

Figure 9 is an air view of the Lewiston-Auburn area. Peck's store at the head of Lisbon Street has been selected as the zero point for a high air burst of an atomic bomb. The circles on the picture indicate the distances from the epicenter and the saw-tooth lines indicate the extent of the zones of very heavy, heavy, moderate and slight damage that would be produced by the so-called "baby" type atomic bomb of the kind used in Japan. The A-bomb radius of complete destruction would be approximately 1½ miles out in all directions from the ground zero and would include most of the business and industrial area shown on figure 9. Included in the zones of moderate and light damage would be practically all of the residential sections of both cities (figure 10).




FIGURE 7

Aerial view of the business and industrial center of Portland, above. Circles indicate the distance out from the ground zero at the intersection of Congress and High Streets. Area of very heavy damage that would be caused by an A-bomb exploded high in the air over the city would extend out in all directions for ¾ of a mile to the first saw-tooth line while the area of heavy damage would extend on from there to the second saw-tooth line approximately 1½ miles out in all directions from the ground zero point. Almost all buildings and structures above ground would be totally destroyed within this 1½ mile radius.

CODE

1. Ground zero — corner of High and Congress Streets.
2. Post Office on Forest Avenue.
3. Railroad Station.
4. Maine General Hospital.
5. Portland City Building.

Figure 11 is a map of the Bangor area including Dow Field on the outskirts of the city. The western edge of the city about one mile from the air field has been selected as a zero point for a high air burst of a "baby" type atomic bomb. Here again, the circles on the map indicate the distance out from the epicenter and the saw-tooth lines outline the extent of the damage zones which would be similar in extent to those shown above for Portland and for Lewiston-Auburn.

A study of the last five figures should give the reader a clearer conception of the extent of the damage which could reasonably be expected to result from the terrific blast that would be produced by the detonation of a "baby" type atomic bomb high in the air above any one of our larger Maine cities. The types of casualties inflicted on persons in any such area by an atomic bomb blast and the treatment of the various type of injuries will now be described in greater detail.

## Burns

The burns that occurred were of two types, namely: (1) Flash burns (figures 12 and 13) which were the result of the direct action of the radiant energy released at the instant of the detonation of the bomb, and (2) flame burns which were relatively

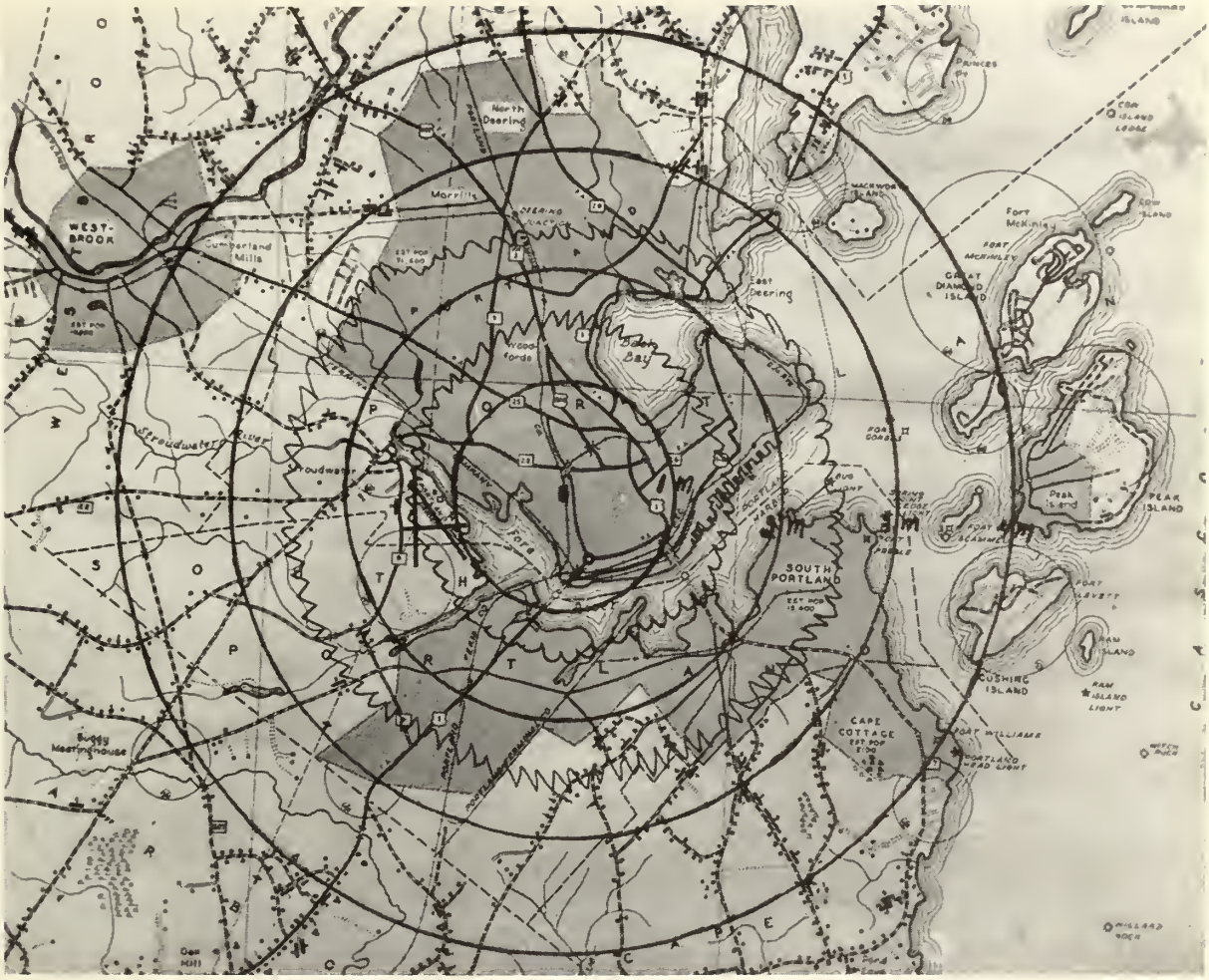



FIGURE 8

Map of Portland and surrounding territory above, on which are shown the probable areas of destruction which would result in the event an A-bomb was detonated high in the air over the intersection of Congress and High Streets. Smooth circles have been drawn at one-mile intervals extending out from ground zero. The area of heavy damage is enclosed by the inner saw-tooth line, the area of moderate damage lies between the two saw-tooth lines, while the area of light damage extends beyond the outer saw-tooth line to about the 4-mile circle on the map.

rare, presumably because it took only an hour or a little more for the fires that were started following the blast to spread; and as a consequence those persons who did not escape were actually burned to death within the city.[3, 4]

The radiant energy released resembled that of the sun and covered the entire width of the spectrum. The ultra-violet, visible light and infra-red rays affected only exposed parts of the skin (figure 13) since any solid object such as clothing or foliage was sufficient to produce a shadowing effect and prevent penetration of these three types of rays. These injurious agents were of extreme intensity, but of very short duration, as shown by the fact that dark colored telephone poles (wood) were superficially carbonized at 3,000 meters from the center. Burns severe enough to require treatment beyond 3,000 meters were few in number and were of no significance beyond 4,000 meters.

Burns and blisters were demonstrable within five minutes on persons close to the blast, while burns appeared in two hours and blisters within six hours in those individuals in the vicinity of 1,500 meters distance from the center. It required three hours for burns and ten hours for blisters to appear on those who were 2,000 meters away from the zero point.

A few palpebral burns were noted but, in general, direct injuries to the eyes were surprisingly few in number. Temporary amblyopia lasted on an average of five minutes in the majority of instances while only a few had conjunctivitis and keratitis.

Keloid changes were frequently seen as these burns 14). The reason for this high incidence of keloids has not been established as yet.

Pigmentation was extreme and was one of the striking features of these burns produced by ultra-violet rays. An intense erythema preceded these burns

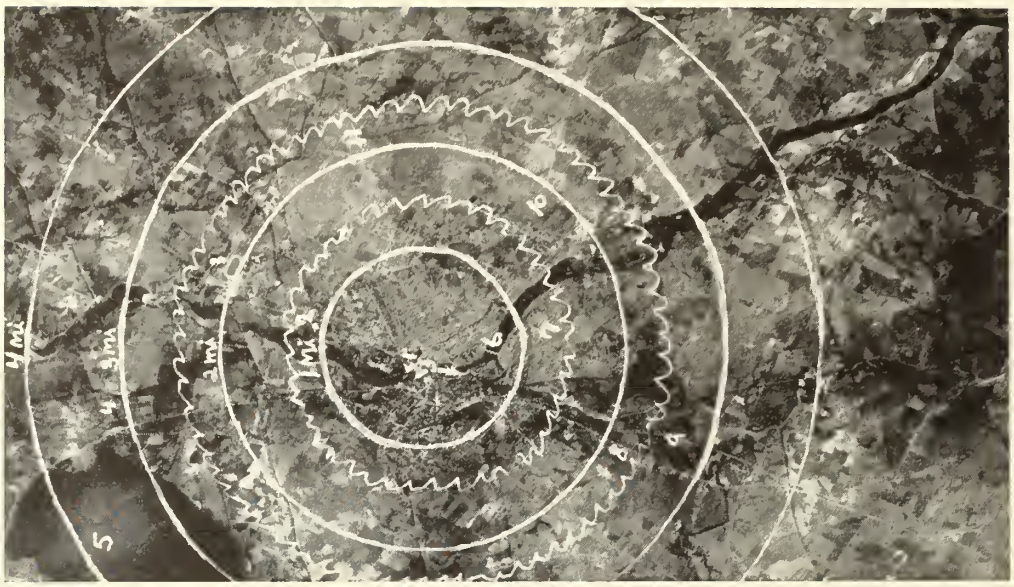



FIGURE 9

Aerial view of the business and industrial center of Lewiston-Auburn, above. Circles indicate the distance out from the ground zero at Peck's Store at the head of Lisbon Street. Area of very heavy damage that would be caused by an A-bomb exploded high in the air over the twin cities would extend out in all directions for ¾ of a mile and the area of heavy damage from there on out to the first saw-tooth circle. The area of moderate damage would extend out beyond the inner saw-tooth circle to the outer saw-tooth circle and the area of light damage would extend beyond this second saw-tooth circle to the 4-mile circle.

CODE

1. Peck's Store — Lisbon Street.
2. Maine Street — Lewiston.
3. Fair Grounds.
4. East Auburn.
5. Lake Auburn.
6. South Bridge — Androscoggin River.
7. New Auburn.
8. Portland Road.
9. Maine Central Railroad.
10. Lisbon Road.
11. Sabattus Road.

healed and were extreme in many instances[2, 3] (figure which became deeply pigmented after a few days and remained so for many months in the majority of instances (figure 12).

The light colored, loosely fitting clothing gave the most protection. A khaki uniform, coat and shirt worn together were protective beyond 1,500 meters but clothes were of no protection and often caught fire at distances under 1,500 meters. The darker shades of clothing absorbed more heat and were frequently entirely burned out while the lighter shades remained undamaged.

The magnitude of the medical aspects of an atomic bomb disaster is almost beyond the capacity of even medical men including military doctors to grasp. A brief description of what happened immediately after the atomic bomb burst over Hiroshima at 8.15 a. m. on August 6, 1945, may be helpful to medical personnel in their attempt to visualize the magnitude of the task that would instantaneously thrust itself upon the medical components of our Civil Defense and Public Safety Organizations, in event one of the dreadful new type atomic bombs was detonated over one of our thickly settled industrial areas.

The hospitals in Hiroshima were either immediately completely wrecked or badly damaged by the atomic bomb burst and the majority of the serving physicians and surgeons in the city found themselves bodily incapacitated in varying degrees, their offices wrecked and their equipment and supplies scattered or destroyed. Sixty-five doctors were already dead and the majority of the remaining total number of 150 were wounded. One thousand six hundred and fifty-four (1,654) nurses out of a total of 1,780 were either dead or too badly hurt to work. This explains in part, why so many citizens who were injured in Hiroshima went untended.

Only six doctors out of thirty and only ten nurses out of over two hundred were able to function in the Red Cross Hospital which was the largest one located 1,650 yards from the center. The only uninjured doctor on the Red Cross Hospital Staff was Dr. Sasaki.

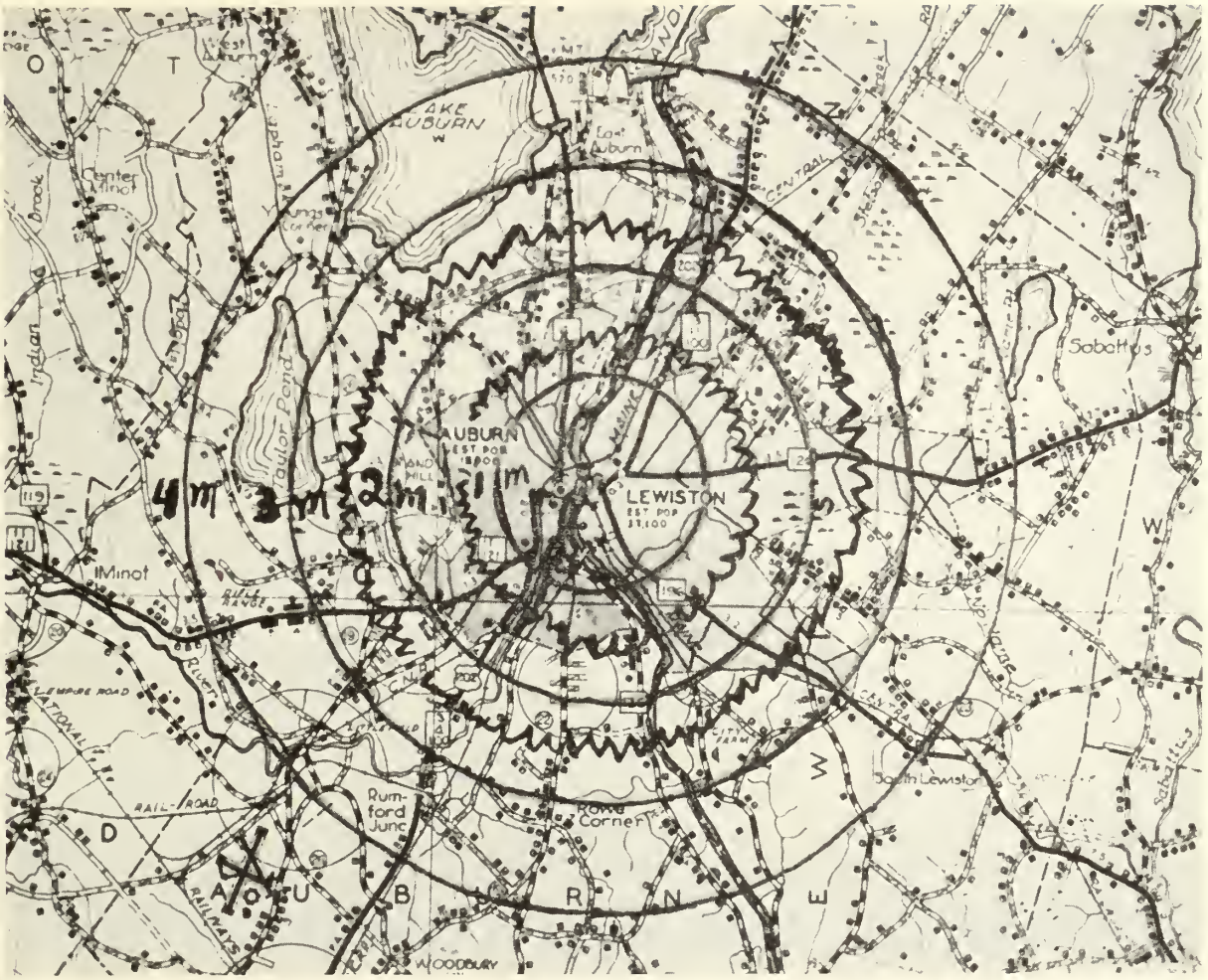



FIGURE 10

Map of Lewiston-Auburn and surrounding territory, above, on which are shown the probable areas of destruction which would result in the event an A-bomb was detonated high in the air over Peck's store at the head of Lisbon Street. Smooth circles have been drawn at one-mile intervals extending out from ground zero. The area of heavy damage is enclosed by the inner saw-tooth line, the area of moderate damage lies between the two saw-tooth lines, while the area of light damage extends beyond the outer saw-tooth line to the 4-mile circle, on the map.

His glasses were broken and he was obliged to use a pair he took from an injured nurse in order to continue with his work.

Dr. Sasaki found the chief surgeon of the hospital terribly cut by broken glass fragments. The hospital was in an unbelievable state of disorganization and confusion. Heavy partitions and ceilings had been blown in and the debris had fallen on patients and windows had been blown in and the broken glass had cut patients many of whom were bleeding badly while others were screaming. Beds had been overturned and many patients, as well as hospital personnel, were dead.

Dr. Sasaki at first thought that only the hospital building he was in had been hit. Therefore, he hurried to the storeroom to obtain bandages and antiseptics but found this room in a shamble like everything else in the hospital. Bottles of medicine had been thrown off the shelves and broken, salves had splattered over the floor and onto the walls and instruments were scattered everywhere. The doctor gathered up some bandages and an unbroken bottle of mercurochrome and returned to dress the wounds of the chief surgeon. Then, he went out into the corridor and began bandaging and patching up the injured doctors, nurses and patients there.

Meanwhile outside all over Hiroshima, injured and dying inhabitants turned toward the Red Cross Hospital to seek medical assistance and care. Before long, patients lay and crouched on the floors of the wards, in the corridors, on the stairs, in the laboratories and all the other rooms, under the portecochère, on the front steps, and in the hospital driveway and courtyard, and for blocks each way in the streets outside. At least ten thousand of the wounded made their way to this Red Cross Hospital which was altogether un-

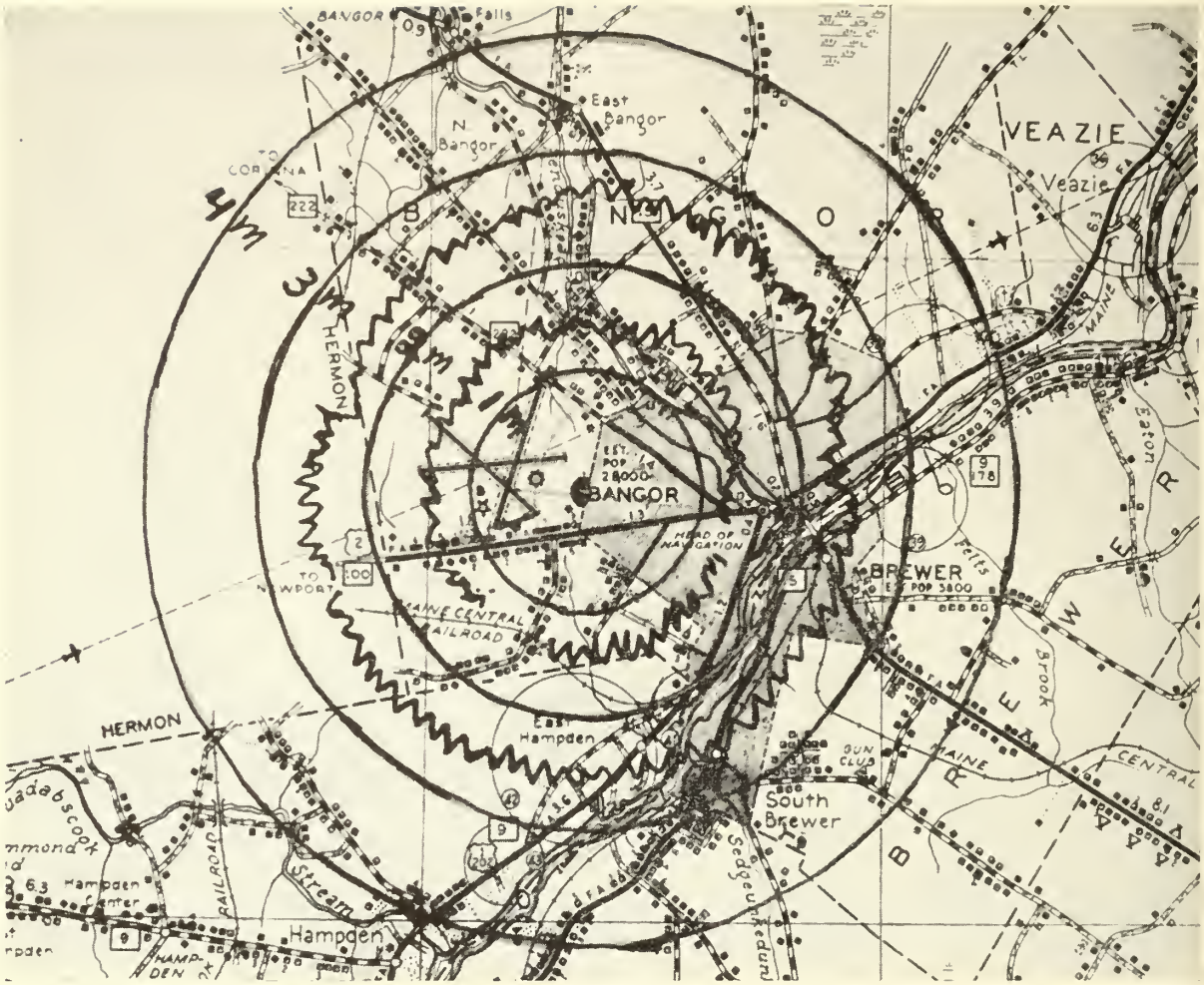



FIGURE 11

Map of Bangor and surrounding territory, above, on which are shown the probable areas of destruction which would result in the event an A-bomb was detonated high in the air over a point at the western edge of the city adjacent to the air field. Smooth circles have been drawn at one-mile intervals extending out from ground zero. The area of heavy damage is enclosed by the inner saw-tooth line, the area of moderate damage lies between the two saw-tooth lines, while the area of light damage extends beyond the outer saw-tooth line to the 4-mile mark on the map.

equal to such an influx as it had only six hundred beds and they had all been occupied at the time of the atomic detonation.

Dr. Sasaki worked without method, taking those who were nearest him first. He soon began to find people with terrible burns mixed in with those with abrasions and lacerations, which most persons in the hospital had suffered, and realized that casualties were streaming in from the outside. The doctor soon began to pass up the lightly wounded and decided that all he could do was to keep the seriously injured from bleeding to death. Bewildered by the number of desperately injured and dazed by so much traumatized tissue, Dr. Sasaki stopped working as a skillful surgeon and became as an automaton mechanically doing what was necessary. He continued throughout the day to bind up the worst cuts as he came to them. Other doctors were putting compresses of saline solution on the worst burns as that was all they could do with the limited means at their disposal.

By three o'clock the next morning, after 19 hours of this gruesome work, Dr. Sasaki was not physically capable of dressing another wound. He procured a straw mat, and with a few other survivors of the hospital staff, went outside behind the hospital in hiding in an attempt to get some much needed sleep. Within an hour, however, the wounded people had found him and further sleep was impossible; hence he got up and went back to work where he continued for three straight days with only that one hour's sleep.

On the second day he began to sew up the worst cuts and right through the following night and the third day he continued with his suturing of serious lacerations. Many of these wounds were already festered.

On the second day, the vice-chief of the Red Cross ospital went down to the vault in the basement of ıe hospital where the X-ray supplies were kept and ound all the plates exposed. This led the staff to sus-ect that there must have been something new and eculiar about the bomb that had been detonated over ıe city the day before.

On the second day a fresh doctor and ten nurses ame in from the city of Yamaguchi and brought long additional bandages and antiseptics. Another hysician and a dozen more nurses arrived from Iatsue on the third day. Yet there were still only ight doctors for ten thousand patients.

The supply of medicines gave out within the first ew days. It has been said that potatoes and other egetables were cooked up into a sort of paste and sed as substitutes for ointments on the many se-erely burned patients for whom there was a lack of andages and suitable sterile dressing materials.

It required the better part of a month to reestablish ome semblence of order within the Red Cross hos-ital and to replace, though inadequately, the supply f medicines by contributions from other cities.

John Hersey, in his book entitled "Hiroshima"[5] as furnished the world and the medical profession vith one of the most superb descriptions of what hap-ened in Hiroshima during the days which followed ıe detonation of an atomic bomb over that city at .15 a. m. on August 6, 1945. He has given an amaz-ngly accurate description of the types of casualties ıat resulted directly and indirectly from the bomb urst; and he described almost perfectly all the vari-us phases of radiation sickness. "Hiroshima" is a assic that every physician should procure for his wn personal library and should himself read. There no better way whereby a doctor can acquaint him-lf with what the medical man will be expected to ıce in event an atomic bomb is detonated over a rge industrial area in his vicinity.

Even after the above description, which was neces-ırily brief, of what occurred after the atomic bomb ırst over Hiroshima on August 6, 1945, it may still e difficult for the average civilian physician to vis-ılize the magnitude of the medical aspects of Civil efense and Public Safety planning in this new omic era; therefore, a few comparisons of a more miliar type will be made.

Much has been written about the Coconut Grove re in Boston in 1942. This catastrophe resulted in 91 deaths and taxed to the limits, the hospital facili-es within one of the countries greatest medical cen-rs where it proved difficult to provide the necessary eds and medical supplies required for the treatment the seriously injured and burned survivors.

Most New Englanders are familiar with the great rcus tent disaster and fire which occurred in Hart-



FIGURE 12
Ray burns of legs. (Armed Forces Institute of Pathology.)



FIGURE 13
Ray burns which occurred at 2,300 meters from the center. This is a typical "profile" burn with deep chocolate brown pigmentation. Note sharp outline protection of upper portion of neck afforded by mandibular shading. (Armed Forces Institute of Pathology.)



FIGURE 14

Keloids—Arms, Chest. [This photograph was taken 1½ years after the initial injury.] (From Armed Forces Institute of Pathology.)

ford, Connecticut, on July 6, 1944. This catastrophe resulted in the death of 158 persons and in burns and other serious injuries to an additional 200 people. Here again, the hospital facilities of a great city were taxed to the limit to provide the beds, the medical and nursing personnel and the medical supplies required to provide adequate medical care for the disaster victims.

Then there is the matter of whole blood, plasma, dressings, antibiotics, and sulfa-drugs, and other medical supplies and nursing care. In the June 13, 1949, issue of "Life" magazine there was an article about a young boy who suffered extensive third degree burns. The material that had been required to restore him to health is shown in figure 15. Used was a total of 70 pints of liquid plasma, 12 pints of dry plasma, 24 pints of blood, 32 pints of protein hydrolysate, 70 bottles of glucose, 27 pints of saline solution, penicillin, oral protein, multi-vitamins, liver extract, and folic acid. In addition, large quantities of dressing materials were used such as sterile gauze and compresses, vaseline gauze, mechanics waste, burn dressings, stockingette and plaster of Paris for splints.

Pearse and Payne have computed the amount of materials and the personnel required for the therapy of one patient with a 40 percent moderate temperature burn that was treated in the University of Rochester hospital in the summer of 1947.[6] They found that 42 tanks of oxygen, 2.7 miles of gauze, 36 pints of plasma, 40 pints of blood and 104 pints of fluids were the medical supplies used and that three nurses and two physicians represented the medical personnel required.

Pearse and Payne calculated that over 34,000 persons were severely burned out of the total population of 300,000 in Hiroshima; and these authors pointed out that: if it were necessary to treat all of these burn cases in a manner similar to the one treated in the University hospital, the requirements in personnel and equipment would be staggering. They have shown in their figure 10 that 170,000 professional personnel and 8,000 tons of medical supplies would be required to provide the present day accepted form of treatment for 34,000 severely burned casualties. These supplies would fill a liberty ship, would be equivalent to the Washington monument in volume, and would cost $10,000,000.00.

It has been said that it would be unrealistic to prepare for fewer than 40,000 to 50,000 severely burned persons from a single atomic explosion.[2] Although not all burn cases would require as much support as the cases cited above, these examples nevertheless, make apparent the magnitude of the burn problem alone and make it obvious that such ideal treatment would be impossible under catastrophe conditions.

Pearse and Payne have pointed out that it seems important to re-evaluate the modern therapy of burns, in terms of the burns produced by the atomic bomb.[6] Yet despite the fact that more and more is being learned about the flash burn, little change in the accepted treatment of burns can be made as yet. However, the entire problem is being studied from several approaches with some promise of a more practical and effective solution for the mass treatment of burn casualties in large numbers.

The modern trend in the treatment of burns recommends the pressure type of dressing. This method permits the burned area to be totally covered, thus helping to prevent secondary infection and trauma. A layer of sterile dry gauze or vaseline gauze is used first to cover the lesion, a few more layers of gauze are added followed by a thick layer of cotton-wool or mechanics waste. Then, this thick dressing is held in place by a snug elastic bandage or a light plaster cast.

A quick pressure dressing for large burned areas which is fairly easy to handle and adjust has been described in a recent paper by Marino.[7] The burn is properly cleansed and covered with a layer of sterile plain or vaseline gauze first, after which a special rolled dressing is laid upon it. This rolled dressing is made of a square layer of cotton-wool of different sizes wrapped in a gauze case, giving thus a sheet of




FIGURE 15

In this picture is shown the huge quantity of medical supplies that were required in the treatment of a single case, with extensive third degree burns. (From Atomic Bombing — a Problem for Civil Defense — Speech by Lt. Colonel G. F. Hawkins delivered to a meeting of mayors and metropolitan area Civil Defense Officials of the State of New Jersey, at Newark, 6 December, 1949 — published by First Army, February, 1950.)

elastic material very easy of disposal. The author had such dressings made in long ribbon design and in different sizes, which were especially applicable for wrapping around the segments of the human body.

The rolled dressings are made with a single sheet of gauze enclosing a layer of cotton-wool and mechanics waste 4 to 5 cm. thick and 15 to 25 cm. in width and 2 to 2.5 meters in length. They are easily handled, take up very little space when rolled up and stored in metal containers or in brown paper bags, closed with a clip for sterilizing, after which they can be stored in large linen bags or metal boxes and kept near the operating theater so as to be quickly available.

The surgeon holds the rolled dressing with sterile gloves and applies it to the burned area. Surgeons are thus able to carry out the entire procedure with speed and ease and without additional trauma or shock. The bandage can thus be used as an elastic pad in the manner just described; or it can be soaked in saline solution affording an easy way of changing wet dressings in infected burns.

The Germans are said to have had a thick pressure type of bandage impregnated with one of the less common sulfa-drugs which was designed for direct application in the field to large burned areas. This dressing was made up like a mercurochrome type "band-aid" adhesive pad with a crinoline type covering over the gauze pad and adhesive. This covering was simply stripped off and the thick medicated dressing applied in such a way as to cover all of the burned area. These German type pads were easily and quickly applied, helped to prevent infection, relieved the pain and reduced traumatic shock and permitted the burn casualty to be quickly evacuated to rear echelons where more adequate therapy could be administered.

This type of medicated "band-aid" dressing de-

signed by the Germans was said, by our medical officers who saw them, to be superior to anything in the line of first aid type of burn dressings furnished by our armed services medical department.

Some quickly and easily appliable medicated "band-aid" type dressing or some easily applied rolled pressure type dressing similar to that recently described by Marino should be perfected and settled upon as the accepted form of immediate therapy for burns produced by the atomic bomb. These dressings would have to be mass produced and stored in sectional depots that would be located where they would be relatively safe from actual atomic bombing yet where the medical supplies could be made quickly available for use in stricken cities within that locality. It is obvious that there would not be available either the medical personnel, the equipment, or the medical supplies that would be required to treat, by the present accepted methods, the huge number of burn casualties that must be expected after a high air atomic bomb burst over any one of our large, thickly settled industrial areas. For one thing, all the practicing physicians not in the armed forces, who still remain in civil practice in this country would be needed to treat the severely burned casualties from a single atomic detonation using the present accepted orthodox treatment for severe burn victims. Hence, it is obvious that our present day therapy for burns would be entirely out of the question in event of an atomic bombing and that some new much simplified form of therapy must be devised to treat the large number of burn cases that would be expected from such a disaster.

## Acute Radiation Illness or Acute Radiation Syndrome

Immediately after an atomic bomb blast those in the vicinity who escape death from shock, burns and falling debris may at first appear to have suffered no ill effects. However, physicians must be prepared to expect acute radiation illness in a substantial number of these survivors who were within a mile and a half of the zero point;[2, 3, 4] and must, therefore, be prepared to take nothing for granted about the condition of these survivors during the first few days after the detonation of the bomb. Persons exposed to heavy radiation suffer various types of tissue injuries,[8, 9] develop serious malfunctions and manifest definite signs and symptoms characteristic of acute radiation syndrome. The amount of radiation absorbed in a single dose and the proportion of the body exposed are the two factors that determine the severity of the symptoms. It is believed that about 500 roentgens given over the entire body would probably prove fatal to the majority of persons; and 400 roentgens of whole body irradiation is believed to be the amount that would kill about half of all persons exposed to it. This latter dose is called the human LD-50, or 50 percent lethal dose. Radiation illness and, in rare instances, death would result from 200 roentgens of whole body irradiation and, the chances for recovery or for death will vary with the dosage of external radiation received and with the area of body surface exposed to that radiation.

Acute radiation illness can also result from radioactive materials which have been inhaled or ingested into the body and have lodged in various organs of the body where they can emit their destructive radiations to tissues at close range. The damage produced by internal radiation will be discussed later after the effects of external radiation have been described.

Four known kinds of penetrating external radiation can be expected within the immediate area of high air atomic bursts such as those in Japan.[9, 10] They are:

*First,—gamma radiations,* which are very similar to powerful X-rays. Large numbers of gamma-rays are produced instantly when the atomic bomb is detonated and travel at great speed in a straight line in all directions. They would be lethal to anyone out in the open within roughly a mile of the zero point and would do serious damage to those within a mile-and-a-half; but their range is limited to approximately two miles of the epi-center.

*Second, — neutron beams* are tiny invisible streams of heavy atomic particles shot out in all directions within a millionth of a second of the explosion. They have less range than the gamma-rays and, therefore, do not travel as far as the latter.

Both gamma-rays and neutron beams produce the same type of injury by extensive ionization of the atoms which make up the body cells as they pass through the tissues and organs of the human body.[8, 9] It is thought that these two types of external radiation penetrate deeply into the body and ionize the atoms that make up the various elements — carbon, nitrogen, hydrogen, oxygen, etc., and that these atoms are then no longer electrically neutral, but become very reactive chemically because of the positive and negative electrical charges which have been imported to them. This eventually results in a breakdown of the chemical bonds, causing profound alterations in cellular function. The proteins, enzymes and other substances that make up certain of the cells within the body are disrupted. As a result these cells are either injured or killed; and when such cell injury is sufficiently extensive, essential body functions will become impaired and such persons will become seriously ill and may even die. Neutron beams are captured in the elements contained in human cells and produce new elements which are themselves radioactive and may

remain so for a long time. Thus, neutron beams have another effect entirely new in medical science.

Unfortunately, neither the neutron beams nor the gamma-rays can be detected by the ordinary senses. A person can receive a sufficient amount of these two types of ionizing radiation to produce far more serious tissue damage than would be sustained from a severe burn without being aware of any unpleasant sensation. Furthermore, even though serious chemical and physiological changes may have occurred almost instantly in the tissues from the ionizing effect of the neutron beams and the gamma-radiations, no clinical signs or symptoms may appear until several days later.

*Third,—beta-rays* are streams of electrons which have almost no penetrating power. Their effect is found chiefly on the surface as they rarely penetrate the skin.

*Fouth,—alpha particles* are the nuclei of helium atoms and they do not get through the horny tissue or outer layers of the skin. Therefore, it is unlikely because of their low penetrating power, that either the beta-rays or the alpha particles liberated directly from an atomic explosion could cause fatal injuries.

### Radiological Contamination

The dangers from radiation that have been described thus far have been those which affect people exposed to immediate injury from the detonation of an atomic bomb.[2, 4] Under certain conditions, radiological contamination could become a most serious and dangerous after effect of the explosion. Ordinarily about one per cent of the nuclear radiation produced by an atomic bomb is not liberated immediately but comes from the decay of fission products.[10]

In the high air bursts in Japan on clear days the fireballs and mushroom cloud carried these fission products high up into the air where they were widely dispersed by the prevailing winds.[11] As a result of this wide dispersal the delayed radiation at the site of the bomb burst was negligible and there was no dangerous contamination of the earth's surface even on the downwind side of the zero point. The Japanese people did enter the bombed area immediately after the atomic explosion and none of them suffered any ill effects from residual radiation.

An atomic bomb burst close to the surface of the earth, or under water,[11] would increase the amount of contamination with radioactive materials. A very heavy contamination should be expected after an under water detonation,[5] or in event the base surge spread over the surface instead of being carried high up into the air. The amount of such residual radioactivity, and how long it would continue to a degree dangerous to people would depend upon many and variable factors. However, this residual radioactivity can be detected and measured by trained teams using Geiger counters and similar devices, and their measurements would determine when and for how long it would be safe to enter such contaminated areas (figure 16).



FIGURE 16

The "Geiger Counter" is used for measuring the rate of radioactivity in a contaminated area. Beta and gamma radiation are made audible through the earphones and register on the dials as roentgens or miliroentgens per hour. (Atomic Bombing — A Problem For Civil Defense — Headquarters, First Army.)

(This is the second of a series of articles by the Maine Medical Association Committee on Civilian Medical Defense. The second installment of this particular article will appear in the June issue of the Journal.)

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One of the most persistently discouraging facts about cancer of the lung, is the long interval of ten months that elapses, on the average, between the patient's first visit to the doctor and the time when the diagnosis is made. — Overholt, R. H., and Schmidt, I. C., *New England J. Med.*, Nov., 1949.

# EDITORIAL

## The Program in Brief

Facing you in this issue of the JOURNAL is the Program in Brief for the 96th Annual Session to be held at the Poland Spring House, Poland Spring, Maine, June 18, 19 and 20.

This program, which has been arranged by the Scientific Committee under the Chairmanship of Dr. Carl E. Richards of Alfred, more or less speaks for itself — but just so you won't miss anything I am going to outline it here, then let you get the details from the next two pages.

Dr. Richards has promised a speaker of distinction for Sunday evening but chooses at this time to keep his identity from us. We do understand, however, that the era of magicians is at an end so far as the Sunday evening program goes, and that it will be well worth your while to be there.

As you will note on the program the Monday morning session is being taken care of by three Chest Surgeons for the State of Maine.

Three Out-of-State speakers are slated for Monday afternoon and will bring you a variety of subjects; "Obstetric Helps," "Diagnosis and Treatment of Hand Injuries," and "Poliomyelitis, Some Aspects of Current Concepts and Practics." And last but not least will be the President's Address. We understand that your President, Dr. Goodwin, is going to present to you an address relative to some of the highlights of medical practice in Maine for the past ten years. Incidentally have you ever heard Dr. Goodwin speak? If not don't miss this opportunity to find out what he can do along this line.

Mr. Leonard E. Read, President of The Foundation for Economic Education will be the guest speaker Monday evening. The purpose of this Foundation "is to study and explain the principles of economic freedom." "Compulsory Collectivism and the 'managed economy' are sweeping the world today — in America as elsewhere," says Mr. Read. "The primary reason for this is that so few persons understand the philosophy of liberty."

Tuesday morning you will hear from four Maine General Hospital doctors; Drs. Elton R. Blaisdell, Stanley E. Herrick, Joseph E. Porter, and Jack Spencer. These men represent the Departments of Medicine, Pathology and Roentgenology at the hospital. Following this group will be Dr. Louis Weinstein, who will talk to you on "Antibiotic Treatment;" your Attorney, Herbert E. Locke, who will speak briefly on a few vital matters relating to Medico-Legal Problems; Dr. Charles C. Lund, who will speak on "Home, Office and Hospital Management of Burns," and Dr. Harry Blotner, whose subject will be "Diabetic Detection."

The Maine Medico-Legal Society will take over Tuesday afternoon, and have a typically interesting program in store for you.

There will be four luncheon meetings. On Monday, from 12.30 to 2.30, there will be a luncheon meeting of Presidents and Secretaries of County Medical Societies in the Banquet Room, and a meeting of the Maine Radiological Society in the Main Dining Room. On Tuesday, 12.30 to 230, there will be a Diabetic Panel and an Eye Panel.

Two Specialty Conferences will be held Tuesday afternoon from 2.30 to 5.00. Dr. Ralf Martin will conduct a Heart Conference, and Dr. Loring W. Pratt an Ear, Nose and Throat Conference.

The Annual Banquet will be held Tuesday evening at 7.00 o'clock. Governor Payne will be unable to be present because of the Annual Conference of Governors, but is sending a representative from the State. Charles F. Phillips, President of Bates College, will be the guest speaker for this occasion. Your President, Dr. Goodwin, will preside at the banquet and will present Fifty-Year Medals to twelve members of the Association.

Dr. Richards is very anxious to get it across to the members of the Association that this program, which can't help but be of interest to the specialist, has been arranged with the general practitioner uppermost in mind. And also that the specialty conferences are open to all members.

The Androscoggin County Woman's Auxiliary is arranging the program for the Ladies, and Dr. Francis A. Winchenbach is looking after the Golf Tournament.

The House of Delegates will meet on Sunday at 3.00 P. M., and on Monday at 5.00 P. M. These meetings are important. If you are a delegate don't miss them. If you are not a delegate why not plan to attend and be conversant with the program outlined for your Association for the coming year.

The complete program will be published in the June issue of the JOURNAL and a copy sent to each member prior to the meeting. In the meantime make your reservations at the Poland Spring House, Poland Spring, Maine.

# PROGRAM IN BRIEF

## Maine Medical Association

## Ninety-Sixth Annual Session

### POLAND SPRING HOUSE

### Poland Spring, Maine

### SUNDAY, MONDAY, TUESDAY

### JUNE 18, 19, 20, 1950

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### SUNDAY, JUNE 18, 1950

**3.00 P. M.**

First Meeting of the House of Delegates

Foster C. Small, M. D., President-elect, presiding

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**7.00 P. M.**

Dinner

Speaker—To be announced

Quartet—The Four Keys

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### MONDAY, JUNE 19, 1950

**9.30 A. M.**

General Assembly:

Presiding: Ralph A. Goodwin, M. D., President

Announcements:

Carl E. Richards, M. D., Chairman, Scientific Committee

Frederick R. Carter, M. D., Secretary

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**10.00 A. M.-12.00 Noon**

General Session:

*Thoracic Surgery*

Speakers:

Lloyd Brown, M. D., Bangor — The Place of Surgery in Pulmonary Tuberculosis

Emerson H. Drake, M. D., Portland — Surgery of Esophagus and Upper Stomach

William V. Cox, M. D., Lewiston — Subject to be announced

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**12.30 P. M.**

Luncheon

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**12.30 P. M.-2.30 P. M.**

Luncheon Meetings:

1. Presidents and Secretaries of County Medical Societies in Banquet Room

Ralf Martin, M. D., Portland, Chairman

Speaker:

Joseph H. Howard, M. D., Bridgeport, Conn., Past President, New England Council of Medical Societies

2. Maine Radiological Society in Main Dining Room

Forrest B. Ames, M. D., Chairman

(Room for meeting to follow lunch to be announced)

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**2.30 P. M.-4.30 P. M.**

General Session:

Charles O. McCormick, M. D., Clinical Professor of Obstetrics, Indiana University School of Medicine

Subject: Obstetric Helps

William E. Brown, M. D., Boston, Mass., Clinical Professor of Surgery, Tufts Medical School

Subject: Diagnosis and Treatment of Hand Injuries

Kenneth Landauer, M. D., Director of Medical Care, National Foundation Infantile Paralysis

Subject: Poliomyelitis, Some Aspects of Current Concepts and Practics

Ralph A. Goodwin, M. D., Auburn, Maine

President's Address

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**4.30 P. M.**

Introduction of Visiting Delegates

Election of President-Elect

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**5.00 P. M.**

Second Meeting of the House of Delegates

Foster C. Small, M. D., President-Elect, presiding

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**7.00 P. M.**

Dinner

Speaker:

Mr. Leonard E. Read, President, The Foundation for Economic Education, Inc., Irvington-on-Hudson, N. Y.

Subject: Compulsory Collectivism

## TUESDAY, JUNE 20, 1950

### 10.00 A. M.-12.00 Noon

General Session

Joseph E. Porter, M. D., Jack Spencer, M. D., Elton R. Blaisdell, M. D., and Stanley E. Herrick, Jr., M. D., Portland, Maine*

* From the departments of Pathology, Roentgenology and Medicine, respectively, Maine General Hospital

Subject: Differential Diagnosis of Gastric Lesions from Cells Obtained by Stomach Aspirations

Louis Weinstein, M. D., Haynes Memorial Hospital, Brighton, Mass.

Subject: Antibiotic Treatment

Herbert E. Locke, Esq., Augusta

Subject: Medico-Legal Problems

Charles C. Lund, M. D., Assistant Clinical Professor of Surgery, Harvard Medical School

Subject: Home, Office and Hospital Management of Burns

Harry Blotner, M. D., Visiting Physician, Beth Israel Hospital, Boston, Mass.

Subject: Diabetic Detection

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### 12.30 P. M.

Luncheon

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### 12.30 P. M.-2.30 P. M.

Luncheon Meetings:

1. Diabetic Panel — Elton R. Blaisdell, M. D., Portland, Chairman
   a) Gerald H. Donahue, M. D., Presque Isle
   Diabetes in Children
   b) Frederic B. Champlin, M. D., Waterville
   Coronary Disease in the Diabetic
   c) Elton R. Blaisdell, M. D., Portland
   Treatment of Diabetic Coma
   d) Discussion of proposed activities of the Maine Diabetes Detection Committee during Diabetic Week
2. Eye Panel — Howard F. Hill, M. D., Waterville, Chairman

Speaker: Maynard Wheeler, M. D.

Subject: The Handling of Strabismus in Children

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### 2.30 P. M.-5.00 P. M.

Medico-Legal Society:

Lt. Arthur S. Freeman, Maine State Police

Subject: Work of the State Police (illustrated by pictures)

James L. Reid, County Attorney

Subject: Getting Away with Murder in Maine

Judge Albert Beliveau

Subject: Relation of Law and Medicine in Criminal Cases

Specialty Conferences:

Heart, Ralf Martin, M. D., Portland, Chairman

Ear, Nose and Throat, Loring W. Pratt, M. D., Waterville, Chairman

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### 6.00 P. M.

Dutch Treat Cocktail Party

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### 7.00 P. M.

Annual Banquet

Presentation of Fifty-Year Medals and Golf Prizes

Speakers:

Governor Frederick G. Payne

Charles F. Phillips, President, Bates College, Lewiston

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## PROGRAM FOR THE LADIES

The program for the Ladies is being arranged by the Androscoggin County Woman's Auxiliary.

## GOLF TOURNAMENT

Francis A. Winchenbach, M. D., will serve as Chairman of the Committee on Arrangements for the Golf Tournament. There will be prizes for members, ladies and guests.

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## Convention Rates

### Poland Spring House

### Poland Spring, Maine

The Convention Rates for the 1950 Annual Session are as follows:

Double room with twin beds and private bath — $12.00 per person per day.

Two double rooms with twin beds and connecting bath, or a double room and single room with connecting bath — $12.00 per person per day.

Single room with private bath—$14.00 per day.

Single or double room without bath — $10.00 per person per day.

Charge for non-registered guests for meals will be as follows:

| | |
|---|---|
| Breakfast | $1.50 |
| Luncheon | 3.00 |
| Dinner | 3.00 |
| Banquet | 4.00 |

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## COUNTY SOCIETIES

**Androscoggin**
President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Joseph A. Donovan, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Paul A. Jones, M. D., Union
Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Linwood M. Rowe, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Albert J. Bernard, M. D., Skowhegan
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Androscoggin

A meeting of the Androscoggin County Medical Society was held at St. Mary's Hospital, Lewiston, April 20, at 8.30 P. M.

It was voted to hold a supper meeting with the Woman's Auxiliary on May 18. There will be no meeting in June and meetings will be resumed in September.

The proposed development of a home nursing service was brought to the Society's attention and it was voted to endorse the principle of establishing a home nursing service by interested community groups.

Dr. Clark F. Miller, radiologist at the Central Maine General Hospital, presented a very interesting discussion of the nature of the atomic bomb blasts and the casualties resulting from such a catastrophe. The pathological basis for the clinical picture was discussed along with the clinical characteristics to be expected in such a group of casualties and the treatment regime. Possible defense measures were also presented as a logical progression from the characteristics of the bomb blasts.

Dean Fisher, M. D.,
*Secretary.*

## Hancock

A meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, April 12. There were eleven members present.

Dr. James H. Crowe reported to the society on a recent meeting of the House of Delegates of the State Association. Dr. Raymond E. Weymouth reported on the latest developments in regard to Civilian Defense.

Dr. Silas A. Coffin of Bar Harbor, gave a talk on "Recent Advances in Surgery," which was followed by discussion.

Charles H. Knickerbocker, M. D.,
*Secretary.*

## Piscataquis

A meeting of the Piscataquis County Medical Association was held at the Greenville Hotel, Greenville, March 23.

It was voted to table the request of the Editorial Board of The Journal of the Maine Medical Association relative to reading and reviewing an article from the Journal at our county meetings.

It was voted that the Piscataquis County Association recommend that the House of Delegates of the Maine Medical Association elect Dr. Wilbur E. MacDougal of Dover-Foxcroft, who was born July 31, 1876, a Senior Member of the State Association without further payment of dues.

It was also voted to recommend that Dr. Fred J. Pritham of Greenville, who will be age 70 in July, be elected a Senior Member of the State Association.

It was voted that this Association is opposed to National Compulsory Health Insurance as it has been a failure wherever it has been tried and it is entirely foreign to the principles which have made the United States the great Country it is today.

Several cases were presented for discussion by members of the Staff of the Mayo Memorial Hospital.

N. H. Nickerson, M. D.,
*Secretary.*

## Lincoln - Sagadahoc

A regular meeting of the Lincoln-Sagadahoc Medical Society was held at the "Ledges," Wiscasset, Maine, on Monday, May 1, 1950, at 6.30 P. M. There were sixteen doctors and two dentists present.

The speaker of the evening was Dr. Callahan from the Pratt Diagnostic Clinic in Boston. He gave an interesting talk on the medical and surgical care of Hypertension, stressing rice diet, rest, psychotherapy and a few drugs.

It was voted to hold future meetings on Tuesday evening.

NEIL L. PARSONS, M. D.,
*Secretary.*

## York

The bi-monthly meeting of the York County Medical Society was held at Kittery on Wednesday, March 8. There were fourteen members and four guests present.

Dr. Stephen A. Cobb, of Sanford, gave a talk on Civilian Defense.

Dr. Stover Plumer Humphreys of Boston, gave a most interesting talk on "Lobotomy—Its Uses and Abuses."

C. W. KINGHORN, M. D.,
*Secretary.*

# WOMAN'S AUXILIARY TO THE MAINE MEDICAL ASSOCIATION

### Woman's Auxiliary to the American Medical Association to meet in San Francisco, California, June 26-30, 1950

The twenty-seventh annual meeting of the Woman's Auxiliary to the American Medical Association will be held in San Francisco, California, June 26-30, 1950, with headquarters at the Fairmont Hotel.

A cordial invitation is extended to all members of the Woman's Auxiliary to the American Medical Association, their guests and guests of physicians attending the convention of the American Medical Association, to participate in all social functions and attend the general sessions of the Auxiliary.

For further information write to: Mrs. Charles W. Steele, President, Woman's Auxiliary to the Maine Medical Association, 1 Wakefield Street, Lewiston, Maine.

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The Executive Board and the Executive Council of the Woman's Auxiliary to the Maine Medical Association, held their business meeting prior to the Annual State Meeting. This meeting was held May 7, 1950, at the Bangor House, Bangor, Maine. There were thirteen present. The State Officers and Chairmen of Standing Committees were present and the appointed Councilors from districts were:

District I Mrs. Edward Holland, Springvale — York County.

District II Mrs. Ralph Goodwin, Auburn—Androscoggin County.

District III (County not organized.)

District IV Mrs. Harold Small, Augusta — Kennebec County.

District V Mrs. Norman Cobb, Calais — Washington County.

District VI Mrs. Penry L. B. Ebbett, Houlton — Aroostook County.

The business of the meeting was as follows: The Constitution and By-laws of the Woman's Auxiliary to the Maine Medical Association was carefully studied. We found, in order for every county to function properly, that our State Constitution and By-laws may need a few changes. A Committee was appointed to carry on this study and to report at an Executive Council Meeting to be held at 10.00 a. m., June 19, 1950, at the Poland Spring House. Any proposed changes will be voted upon at the Annual Business Meeting of the Woman's Auxiliary to the Maine Medical Association which will be held at 1.30 p. m.

The Nominating Committee to present a new slate of State Officers are:

Mrs. Carl Richards (York County).

Mrs. Norman Cobb (Washington County).

Mrs. Martyn Vickers (Penobscot County).

Mrs. Penry Ebbett (Aroostook County).

Mrs. Merrill Greene (Androscoggin County).

Mrs. Harold Small (Kennebec County).

Mrs. Edward Holland (President-elect).

The Woman's Auxiliary to the Maine State Medical Association will be held in conjunction with the Annual Session of the Maine Medical Association, Poland Spring House, June 18, 19, 20, 1950.

June 19:—

| | |
|---|---|
| 10.00 a. m. | Executive Council Meeting. |
| 1.30 p. m. | Woman's Auxiliary Annual Business Meeting. |
| 3.30 p. m. | Guest Speaker — Miss Mary McGinn from Whitaker & Baxter, Chicago, Ill. |
| 4.30 p. m. | Tea. |

June 20:—

Golf Tournament.

Bridge and Canasta.

The Agenda, Reports of State Officers, Chairmen of Standing Committees, and County Presidents will be mimeographed for distribution at the Annual Meeting.

MRS. CHARLES W. STEELE,
*President.*

# HOSPITAL NOTES

The regular February Staff Meeting of the Henrietta D. Goodall Hospital was held Tuesday, April 14, at 4.30 p. m. The guest speaker was Dr. George Bourgeois, Boston, Massachusetts, Surgeon in charge of Gynecology at the Boston Dispensary, Surgical Staff of the Carney Hospital, Instructor in Gynecology at Tufts College Medical School. His subject was "Gynecological Problems." A lively business meeting was held and a delicious dinner was served. Those present were: Drs. O. B. Head, H. D. Ross, S. A. Cobb, E. W Holland, W. L. Morse, C. E. Richards, Melvin Bacon, R. D. Vachon, A. S. Lincourt, W. E. Dionne of Sanford, and J. H. Macdonald of Kennebunk.

The March Meeting was held on the 14th with Dr. Louis Weinstein, Boston, Massachusetts, Associate Professor of

Medicine, Boston University School of Medicine, Lecturer in Infectious Diseases, Harvard Medical School. His subject was "Current Concepts in Clinical Chemotherapy." Plans were made at this meeting to set up a Civilian Defense Program in accordance with the suggestion of the Maine Medical Association and the State Program. It was also decided that the members of the Staff have it arranged to visit one of the larger Boston Hospitals in two separate groups, for post graduate instruction. Those present were: Drs. O. B. Head, S. A. Cobb, E. W. Holland, W. E. Morse, C. E. Richards, R. S. Belmont, Melvin Bacon, R. D. Vachon, W. E. Dionne of Sanford, and J. H. Macdonald of Kennebunk.

A Library and Reading Room for the doctors has been recently opened as a very convenient addition to the Hospital.

An Emerson Resuscitator has been donated to the Hospital by the Woman's Board and Woman's Auxiliary.

Mrs. Gladys Avery, our Record Librarian, was elected Secretary of the newly organized Maine Association of Medical Record Librarians on February 15th, 1950.

Mrs. Katheryne Healey, dietitian, recently resigned. This position was filled on April 1st by Miss Charlotte Peirce of Bangor, Maine. Miss Peirce holds a B. S. degree, University of Maine, and graduate nurse in nutrition at Simmons College, Boston. She has been Therapeutic Dietitian of the Maine General Hospital, Portland, and Assistant Administrative Dietitian at the Boston Lying-in-Hospital before coming to Sanford. She is a Member of the American Dietetic Association.

Miss Marion L. Jackson, R. N., Administrator, attended the New England Hospital Assembly in Boston, March 27th-29th.

S. A. Cobb, M. D.,
*Secretary of Staff,*
Henrietta D. Goodall Hospital, Inc.

## NEWS AND NOTES

### Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.




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# SERIOUS INTRA-ABDOMINAL CONDITIONS SIMULATING APPENDICEAL DISEASE IN YOUNG ADULT MALES AND PRESENTING ACUTE PROBLEMS IN SURGICAL TREATMENT*

John A. Nelson, M. D.**

The diagnosis of acute appendicitis can at times be extremely difficult. That the clinical signs and symptoms of appendiceal disease and its complications can be reproduced by a large number of unrelated intra-abdominal conditions is well known. A striking array of such entities is listed in every surgical textbook and includes practically any pathological process in the lower abdomen and pelvis as well as a number originating in the upper abdomen and chest.

The modern surgeon, earnestly attempting to establish a definite diagnosis before operating on what appears to be an acute abdomen, but swayed by the amply justified present-day surgical philosophy of early operation to keep down the death rate from appendicitis, is often not too surprised to encounter, not a diseased appendix, but another condition which may or may not be amenable to surgical treatment. This should not deter the surgeon from exploring any patient who he honestly considers has a definite possibility of acute appendicitis; for as Ochsner and Barrow[1] have stressed, "The risk of operation is far less than the risk which the patient takes if an appendicitis which may progress to rupture is overlooked." It does mean, however, that the surgeon should be critical of himself and his study of the case if an operation is performed unnecessarily, and it does mean that he must be prepared to deal adequately with more serious conditions simulating appendicitis, some of which may require far more extensive surgery than the usual routine appendectomy.

The surgeon's responsibility upon encountering an innocent appendix in a patient whose signs and symptoms suggest acute intra-abdominal disease is obvious. He must satisfy himself by careful exploration that there is no other pathological process within the peritoneal cavity that could have produced the findings leading him to operation. Whatever the preferred type of incision it must be large enough to admit a hand for exploration. He may find nothing, but he has done his duty toward the patient. He may encounter something that will be a source of worry to him for days and nights to come.

With the discovery at exploration of a serious pathological process unrelated to the appendix the surgeon, in the loneliness of his professional responsibility, is faced, often in the small hours of the morning, with the decision as to how best to treat the

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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patient based upon his own estimate of the possibilities of the gross pathology before him. Is it carcinoma or is it inflammatory? Will the patient, unprepared for intestinal surgery, withstand a resection or anastomosis? What of the risks of spreading an infective process by the exposure and manipulation necessary to perform essential maneuvers? If it is cancer will a more favorable time for resection ever be presented? The surgeon must decide for himself. He is reinforced in his decision to attack radically a lesion which in his best judgment in the operating room requires resection by the assurance that an adequate supply of human blood is available, by his experience with intubation techniques in the postoperative period, and by the protection against spreading and invasive infection afforded by the antibiotics.

The purpose of this paper is to present briefly a number of serious conditions that have been encountered at this hospital during the course of right lower quadrant explorations in young male adults, with a resume of representative case histories, and a discussion as to the handling of these cases in the operating room.

During the period of 42 months between July 1, 1946, and January 1, 1950, acute appendicitis (pathological diagnosis) has been encountered 147 times at the Veterans Administration Hospital, Togus. The breakdown of these cases according to the pathology presented by the appendiceal disease is depicted in Table I.

TABLE I

Breakdown of Cases of Acute Appendicitis Seen at This Hospital Between June 1, 1946, and January 1, 1950

| | |
|---|---|
| Acute appendicitis (unperforated) | 107 |
| Acute gangrenous appendicitis | 20 |
| Acute appendicitis with perforation and local peritonitis | 11 |
| Acute appendicitis with perforation and diffuse peritonitis | 9 |
| Total cases of acute appendicitis (pathological diagnosis) | 147 |

Table II shows the character and number of conditions unrelated to the appendix but simulating appendicitis that were encountered in the course of right lower quadrant exploration of adult males of the World War II age group during this same time period. It is from this diverse and interesting series that the material for this discussion has been drawn.

TABLE II

Acute Conditions Unrelated to Appendix Encountered in R.L.Q. Exploration of Young Adult Males During Same Time Period as Table I

| | |
|---|---|
| Acute mesenteric lymphadenitis | 19 |
| Perforated duodenal ulcer | 2 |
| Regional enteritis: | |
| 1. Acute regional ileitis | 5 |
| 2. Chronic regional ileocolitis with perforation | 2 |
| Acute Meckel's diverticulitis | 3 |
| Acute solitary cecal diverticulitis | 1 |
| Ileocecal tuberculosis | 1 |

*Acute Mesenteric Lymphadenitis*

This benign acute inflammatory process of unknown etiology may so closely simulate the signs, symptoms, and laboratory findings of acute appendicitis that differential diagnosis is impossible. Fat, juicy, inflamed nodes in the mesentery of the terminal ileum have to be considered, in the absence of any other demonstrable pathology, as the cause of the patient's trouble. Whether or not appendectomy is thought to relieve the situation, it is certainly indicated once the abdomen is opened. There is no particular surgical problem presented by this disease other than the necessity for careful exploration before accepting the diagnosis of mesenteric adenitis. The author recalls vividly a curious case of right lower quadrant disease from his training years in New York. The finding of fat mesenteric nodes and a normal appendix satisfied him but not his senior assistant. On further exploration a needle-sharp object was encountered that had perforated the wall of the ileum producing local peritonitis. This object after study at the American Museum of Natural History proved to be a porcupine quill.

*Perforated Duodenal Ulcer*

Perforation of a duodenal (or gastric) ulcer is a relatively common catastrophe in any large population of ulcer patients. Diagnosis of this condition if the patient is so fortunate as to have his sign and symptom picture conform to the classical pattern is usually not difficult, and radiographic confirmation of free air under the diaphragm may be reassuring to the surgeon but not essential to indicate need for immediate laparotomy. It is the common experience of many surgeons, however, that the textbook picture of sudden, overwhelming peritoneal insult may not be presented, and the patient's history and physical findings may be so suggestive of appendiceal disease that surgical attack is misdirected to the right lower quadrant. This, of course, is especially true if the patient has not been seen early, if there has been slow seepage of gastric contents into the right iliac fossa, and if, as so often happens, there is no previous ulcer history.

Two of the 19 cases of perforated peptic ulcer seen at this hospital during the past 42 months have been explored through a McBurney type incision. That

the course of events following the rupture of a duodenal ulcer can reproduce in a startling manner the clinical picture of acute appendicitis is best shown by a brief summary of one of these cases.

Case I. Perforated Duodenal Ulcer

H. G. D., male of 41, completely well until two weeks before admission. Onset then of epigastric discomfort accompanied by crampy periumbilical pain, without periodicity, nausea, vomiting, or change in bowel habits. Seidlitz powder taken day before admission followed an hour later by rather severe pain at level of umbilicus, later shifting to lower abdomen and becoming most marked in R.L.Q. Local doctor diagnosed appendicitis and referred patient for hospitalization.

Pertinent physical findings and laboratory studies: Acutely ill male. Abdomen flat. Diffuse tenderness both lower quadrants, most marked on right. Muscle spasm R.L.Q. Unlocalized rebound tenderness both lower quadrants. Upper abdomen normal. Rectal: diffuse tenderness most marked high on right side. Temperature 99.6. W. B. C. 13,500, polys 74 percent. Urinalysis normal. Diagnosis of acute appendicitis made and immediate laparotomy advised.

Operation: McBurney incision. No free fluid in R.L.Q. Appendix and terminal ileum normal. Ileum drawn out in search for Meckel's began to show streaking with yellowish-white odorless exudate about four feet from ileocecal valve. After negative exploration of lower abdomen, McBurney wound closed and upper right rectus incision made. Small anterior wall perforated duodenal ulcer immediately discovered and closed with mattress sutures and omental tab. Abdomen closed without drainage.

Course: Uncomplicated recovery after short postoperative treatment with gastric suction and antibiotics.

Comment: The McBurney or Rockey type of muscle splitting incision is utilized on this service in all cases in which it is felt the diagnosis of appendicitis is well established. That it was used in this instance instead of the vertical incision reserved for acute intra-abdominal conditions of questionable localization demonstrates the operator's confidence in his provisional diagnosis. It is instructive that the reason for localization of clinical findings in the right lower quadrant was not clear even after opening the peritoneum in this case, and it was not until the surgeon, dissatisfied with the appendix as instigator, began his search for a Meckel's that the real condition was uncovered.

No attempt will be made in this paper to defend the use of the McBurney type incision. The value of this surgical approach to appendiceal disease has been amply demonstrated in several American teaching clinics. The muscle splitting incision is closed easily and firmly, and its use by misdirection in the occasional case in which another more aptly placed incision is required for adequate handling of the uncovered pathology has not been found to complicate the patient's recovery.

*Regional Enteritis*

1. Acute Regional Enteritis.

Although the literature dealing with this disease is now extensive the etiology is still unknown. Any portion of the large or small bowel may be involved, but the most common site is the terminal ileum. This, of course, places the disease most frequently in the right lower quadrant, where in the acute stage in which abdominal pain is the outstanding symptom it is usually discovered at the time of operation for appendicitis. Differential diagnosis, it is generally agreed, is often impossible. A typical case with operative findings is summarized below.

Case II. Acute Regional Enteritis

D. S. G., male of 27, had onset of crampy lower abdominal pain two days before admission, accompanied by anorexia, nausea, and vomiting. Laxative taken day before admission followed by loose bowel movement and localization of pain in R.L.Q., continuous and more severe. Mild bouts of crampy pain to right of umbilicus during past year, none as severe as presenting episode.

Pertinent physical findings and laboratory studies: Marked direct and rebound tenderness with muscle spasm well localized in R.L.Q. Marked tenderness by rectal high on right. Temperature 99. Pulse 100. W. B. C. 14,050, polys 58 percent. Urinalysis 4-5 W. B. C./H. P. F. Diagnosis of acute appendicitis was made and operation advised.

Operation: McBurney incision. Moderate amount straw-colored peritoneal fluid. Appendix normal except for serosal injection. Distal ten inches of ileum acutely inflamed, thickened, edematous, and flecked with fibrin. Mesentery thickened and spotted with large palpable nodes. Appendectomy was performed and abdomen closed without drainage.

Course: Rather marked ileus postoperatively, controlled by Miller-Abbott intubation and enemata. Discharged tenth postoperative day on regime of rest, vitamins, and bland low-residue diet.

Comment: There is considerable disagreement in the literature concerning the advisability of removing the appendix when acute ileitis is encountered. We hold the opinion with Bockus[2] and Allen and Welch[3] that the appendix should be removed in all cases in which cecal involvement does not preclude safe closure of the stump.

There is no disagreement concerning the handling of the acute ileal lesion. Radical surgery is definitely

not indicated as it is well known that all acute cases of regional enteritis do not progress to the chronic cicatrizing stage. Whether or not the appendix has been removed the abdomen is closed without drainage, and the patient, after recovery from operation, is placed under medical management.

2. Chronic Regional Ileocolitis.

A more perplexing situation confronts the surgeon when the patient, after insidious progression into the chronic phase of the disease, suddenly develops acute symptoms referable to peritoneal irritation in the right lower quadrant and presents a clinical picture similar in every way to acute appendicitis with perforation, local peritonitis, and possibly subacute obstruction. A careful history may elicit a more or less chronic story of gradual weight loss, bouts of diarrhea and abdominal pain, but this may easily be slighted in contemplating the acute nature of the presenting episode. These patients are very often acutely ill. Localized and perhaps more diffuse clinical signs of peritonitis are obvious. Radiographic studies other than scout films of the abdomen to ascertain the extent and distribution of gas-filled bowel loops are definitely contraindicated. The surgeon is presented with an acute surgical emergency and must of necessity explore the right lower quadrant. The most common cause for such a clinical picture is complicated appendiceal disease, and this may well be his working preoperative diagnosis. Upon opening the abdomen, however, the surgeon may wish wholeheartedly for a moment that destiny had guided his youthful ambitions into any other profession.

Case III. Chronic Regional Ileocolitis with Perforation

J. L. C., male of 31, admitted May, 1949, with history of generalized crampy abdominal pain beginning four days before and later increasing in severity and settling mainly in R.L.Q. Persistent nausea but no vomiting. Felt feverish and perspired profusely but no shaking chills. Watery bowel movement day before admission and shortly after felt lump at R.L.Q. Past history: Periodic gnawing epigastric pain, poor appetite, and slow weight loss since September, 1948. Under treatment for peptic ulcer. No X-ray studies.

Pertinent physical findings and laboratory studies: Acutely ill young adult. Moderately dehydrated. Abdomen flat with hyperactive peristalsis. Generalized direct and rebound tenderness, most marked in R.L.Q. Rectus spasm but no definite mass in R.L.Q. Rectal examination elicited marked tenderness and fullness right side of cul-de-sac. Temperature 103.6. Pulse 110. Respiration 22. W. B. C. 10,000, polys 80 percent. Urine showed 10-12 W. B. C./H. P. F. Diagnosis of acute appendicitis with perforation and abscess was made and operation advised after administration of fluids and antibiotics.

Operation: McBurney incision. Appendix normal. Large firm mass felt just below and to right of umbilicus. Could not be properly exposed. McBurney wound left open for possible drainage, and midrectus incision made. Mass found to consist of long, firm, indurated loop of terminal ileum, adherent omentum, and an indurated, adherent segment of transverse colon that had apparently perforated forming small walled-off abscess. Both ileum and transverse colon had consistency and gross appearance of carcinoma. A radical resection of terminal ileum, ascending, and a large part of the transverse colon, to include the mass and mesenteric nodes, was performed and intestinal continuity secured by an end-to-side ileotransverse colostomy near splenic flexure. Anastomosis protected by a proximal tube ileostomy. Mikulicz pack placed in deperitonealized right lumbar gutter and brought out through McBurney wound. Vertical incision closed with through-and-through stainless steel wire.

Course: Stormy, requiring M-A intubation and intensive supportive therapy with multiple transfusions, intravenous fluids, and antibiotics. Discharged completely well and with remaining bowel normal by X-ray and in function after six weeks of hospitalization.

Pathological report: Regional enteritis involving terminal ileum and transverse colon with fistula formation, adhesions, and pericolic abscess.

Comment: It is apparent from the literature that the varied manifestations and unknown etiology of regional enteritis have not allowed standardization as yet either of the indications for surgery or the type of treatment. Even in the elective surgical attack in the chronic granulomatous phase of the disease in the ileocecal region there is disagreement among surgeons as to whether the lesion should be handled by (1) a two-stage resection of the terminal ileum, cecum, and ascending colon with short-circuiting ileotransvere colostomy as the first stage; (2) ileotransverse colostomy with exclusion and no resection; or (3) radical one-stage extirpation of the diseased bowel, nodes, and mesentery.

The situation, of course, is even more complicated when an advanced stage of the disease is encountered in an acute abdomen where perforation and abscess render the terrain unfavorable for radical surgery, but in which perforation, obstruction, fistula formation, and other complications of extensive involvement make it essential to alleviate in some way a threatening situation in a seriously ill patient.

We have encountered the complicated situation produced by this disease in two cases in the series listed in Table II.

In one of these, an acutely ill youth of 21, extensive granulomatous involvement of the terminal ileum had partially obstructed and perforated, producing a

large localized abscess. Indications for definitive surgical attack in this case were fairly definite. Here the operator encountered extensive disease which would at a later date require extirpation, a localized abscess necessitating drainage even though fistula formation could be expected, and obstruction of the terminal ileum which required immediate and continued relief. Short-circuiting ileotransverse colostomy with drainage of the right lower quadrant was done not only to relieve the emergency situation but to lay the groundwork for a two-stage resection of the disease.

In the second case (Case III above), the pathological findings were more confusing and the decision required of the operator was correspondingly more difficult. That there was uncertainty at the operating table as to whether the lesion was chronic granulomatous or malignant is not surprising in view of the fact that the pathologist, after gross examination of the resected specimen, refused to make a definite pathological diagnosis until the sections could be examined under the microscope.

Confronting the surgeon was an extensive and serious disease process, whether malignant or granulomatous, that had already advanced to perforation. In spite of the inadequate preoperative preparation of the patient it was felt that any palliative or temporizing procedure would result only in a prolonged and debilitating drainage of pus and bowel contents in the presence of peritonitis, and that a more favorable opportunity for resection would probably never be presented. This was felt to be especially true if the lesion proved to be carcinomatous. Thus, his decision made, the surgeon was faced not by the relatively simple drainage of an appendiceal abscess but with a massive resection of terminal ileum, ascending and transverse colon in the presence of infection, sustaining the patient with multiple transfusions, and protecting him as far as possible with intubation and intensive chemotherapy.

### *Acute Meckel's Diverticulitis*

Meckel's diverticulum is an anomaly of particular interest to the surgeon because its complications are usually of a serious nature and nearly always produce acute abdominal emergencies. Acute inflammation in a Meckel's diverticulum, whether simple or complicated by perforation and peritonitis, gives a clinical picture so similar to the same process involving the vermiform appendix that many eminent surgeons are convinced the diagnosis can only be made with certainty when the appendix is known to have been removed. Since both are acute abdominal emergencies the differential diagnosis is of academic interest rather than of therapeutic importance. What is important, however, to the operating surgeon is the far more serious problem in surgical treatment that acute diverticulitis may present.

Because Meckel's diverticulum is an anomaly represented by a great variety of malformations the pathological process encountered may range from the simple to the bizarre. The most common anomaly encountered, a blind pouch opening on the antimesenteric border of the ileum from three centimeters to three meters from the ileocecal valve, may when acutely inflamed perforate easily because of its thin wall and relatively poor blood supply. Variegated adhesive bands and volvulus of the diverticulum or adjacent ileum are not uncommon. The surgical treatment of acute Meckel's diverticulitis is excision of the diverticulum, but the technical procedure involved may vary from simple ligation and excision to the resection of a large segment of small bowel.

The statistical instance of Meckel's diverticulum varies greatly in the literature. The most commonly quoted figure from autopsy reports is two to three percent, but many long series give a figure far less than this. The diagnosis of acute Meckel's, however, is rarely made except at the operating table, and at that time the incidence of the disease in other than that particular patient is of little consequence. It is important, however, that the disease is a possibility in any acute lower abdomen.

The serious nature of the problems presented by this condition is well illustrated by two of our cases.

Case IV. Perforated Meckel's Diverticulum

K. E. S., male of 25, with onset of crampy lower abdominal pain, epigastric distress, and constipation seven days before. Six doses of Sal Hepatica gave relief for three days. Recurrence of more severe pain day before admission, most marked in R.L.Q. Nausea but no vomiting. Sent in by private doctor as acute appendicitis.

Pertinent physical findings and laboratory studies: Acutely ill young adult. Definite muscle spasm most marked in lower abdomen. Marked direct and rebound tenderness in R.L.Q. toward mid-line. Rectal tenderness in midline and to the right. Temperature 100.2. Pulse 98. W. B. C. 10,000, polys 89 percent. Urinalysis normal. Diagnosis of acute appendicitis made and surgery advised.

Operation: Large amount of cloudy peritoneal fluid. Appendix normal. Mass encountered medial to cecum and extending across midline. This proved to be an abscess surrounded by matted loops of ileum and containing purulent material and globular fecalith two centimeters in diameter. Large gangrenous and completely ruptured Meckel's diverticulum attached by wide base to an indurated ileal loop. Meckel's felt to be too large and involved bowel in too poor condition for excision and closure. The ileal loop including the Meckel's was resected through good bowel beyond the abscess and end-to-end anastomosis performed. The abdomen closed with drainage to the abscess area.

Course: Postoperative course stormy, with peritonitis and ileus requiring Miller-Abbott intubation and intensive chemotherapy. Convalescence delayed by wound abscess. Discharged to leave thirtieth postoperative day.

Case V. Perforated Meckel's Diverticulum with Abscess and Volvulus

F. C. H., male of 24, with onset of crampy pain, beginning in epigastrium and settling in lower abdomen ten days before. Persistent nausea and vomiting. Distention beginning two days after the pain and persisting, relieved somewhat by enemata. Pain continued to admission with increasing weakness and weight loss. Had been confined to bed at home with diet limited to small amounts of fluids.

Pertinent physical findings and laboratory studies: Acutely ill, dehydrated, poorly nourished young adult. Marked distention with quiet abdomen. No localized tenderness or palpable mass. On rectal examination cul-de-sac occupied by firm, not especially tender, fixed mass. Temperature 100. Pulse 90. W. B. C. 16,000, polys 89 percent. B.U.N. 45 mg./100 c.c. Urinalysis 4-5 W. B. C./H. P. F., occasional hyaline casts. Scout films showed distended loops of small bowel with pattern suggesting obstruction in distal jejunum. Working diagnosis was acute perforated appendicitis with pelvic abscess and obstruction from inflammatory adhesion.

Preoperative course and operation: General condition of patient improved with transfusions, fluid and electrolyte replacement, and intensive antibiotic therapy. M-A tube passed with temporary relief, but localized distended loops remained by X-ray. Drainage of abscess with release of obstruction considered essential on third day. Exploration revealed a complicated picture. Markedly distended, purplish loops of lower jejunum and upper ileum were first encountered. This proved to be a clockwise volvulus of bowel and mesentery about a fixed point represented by a bowel loop caught in an abscess wall from a necrotic, perforated Meckel's diverticulum. Detorsion of the volvulus necessitated decompressing the loops and breaking into the abscess to release fixed bowel. Massive resection seemed unavoidable for a time but on close observation and application of warm saline packs circulation improved enough to consider the twisted loops viable. Necrotic diverticulum removed and ileostomy tube inserted through its narrow base. Abdomen closed about the tube and drains to abscess site.

Course: Stormy. Ileus gradually controlled by ileostomy and M-A tube. Recovered slowly under intensive supportive and chemotherapy. Discharged to convalescent leave on thirty-third postoperative day.

Comment: In Case IV the base of the diseased Meckel's was so broad and the adjacent ileum so involved in the inflammatory process that simple excision of the diverticulum and closure of the bowel was not considered feasible. The choice given the operator here was either resection with anastomosis or exteriorization of the involved loop with establishment of an ileostomy. In either case some disruption of the abscess wall would be unavoidable. The surgeon chose resection and to protect his anastomosis by decompression with a Miller-Abbott tube. It is the belief of the author that a tube ileostomy just proximal to the anastomosis would have provided an additional safety factor without materially complicating a wound in which drainage was necessary anyway.

The actual mechanism responsible for the volvulus in Case V was not clear to the operator because of the necrotic condition of the Meckel's diverticulum. It is probable that the Meckel's before its rupture was adherent to bowel loop or the abdominal wall and the twist occurred around this as an axis. The pathological picture encountered in this case would have been far more serious had the circulation in the twisted loops been compromised beyond recovery. Then the operator would have been faced with a massive small bowel resection in a field in which every movement of his hands would spread infection in the peritoneal cavity. Fortunately, too, in this instance the neck of the diseased Meckel's was so narrow that the ileostomy tube could be inserted through it and loosely sutured in place.

That infection was spread widely in the treatment of this case as presented is obvious, for the abscess cavity had to be broken into to release the volvulus, and with the unwinding of the twist a diffusion of peritonitis was unavoidable.

Even though resection was avoided the patient was considered gravely ill when he left the operating table, and his chance of survival would have been small before the advent of the antibiotics and intestinal intubation.

### *Solitary Cecal Diverticulitis*

Jonas,[4] in 1940, collected fifteen cases of acute solitary cecal diverticulitis from the literature, added five of his own, and summarized the available data on the disease. He excluded cases in which diverticula of cecum and ascending colon were part of a generalized diverticulosis of the large bowel and limited the term "solitary cecal diverticulitis" to cases in which the cecum alone was the site of the defect, usually a single true diverticulum. Infection initiating in this blind pouch may produce a pathological picture ranging from simple acute diverticulitis, through gangrene, perforation, abscess, and fistula formation to an indurated inflammatory mass involving terminal ileum, cecum and ascending colon.

That acute solitary diverticulitis of the cecum is not as rare a disease as was previously believed is evidenced by a total of more than one hundred cases now in the literature. Its relative rareness, however, has led to difficulty in recognizing the condition when exposed in the operating room, and to a lack of standardization of surgical treatment if and when the disease is encountered.

That a differential diagnosis preoperatively between acute appendicitis and acute cecal diverticulitis cannot be made is stressed by all authors. This in itself is of little practical importance, for the indications for surgical exploration are clear in either case. Of major importance, however, is the fact that once the disease process is exposed differential diagnosis between the much more frequent carcinoma of the cecum and the firm, indurated, cecal mass of diverticulitis may be extremely difficult or even impossible.

The surgical treatment of the disease as outlined poorly in the literature would seem to consist of the simplest procedure compatible with a proper handling of the exposed pathology. Thus the surgical treatment would range from ligation and excision of an inflamed diverticulum through drainage of paracecal abscess, exteriorization and drainage of cecal wall abscess, to minimal or radical resection. It is interesting to note that Baker and Carlisle[5] in reporting 39 cases, found 14 radical resections had been performed, many on a presumptive diagnosis of carcinoma.

Thus, as in acute Meckel's diverticulitis and regional ileocolitis, the problem presented to the exploring surgeon may be extremely simple or may call for an intensely difficult surgical decision, leading possibly to a massive resection.

The following case history is a good illustration of this problem.

Case VI. Acute Solitary Diverticulitis of Cecum

M. E. D., male of 30, gave history of increasingly severe R.L.Q. pain of 24 hours' duration, accompanied by anorexia and a bout of diarrhea. No nausea or vomiting but patient had not eaten since onset of pain. Mild upper respiratory infection a week before. Past history of mild bouts of R.L.Q. pain for several years coming on after exercise and relieved by rest. None as severe as presenting episode.

Pertinent physical findings and laboratory studies: Muscle spasm, direct and rebound tenderness well localized in R.L.Q. On rectal there was tenderness in cul-de-sac and to the right. Temperature 99.8. Pulse 80. W. B. C. 13,350, polys 90 percent. Urinalysis normal. Diagnosis of acute appendicitis made and laparotomy advised.

Operation: McBurney incision. No free fluid. Appendix slightly injected and bound down lateral to cecum. As cecum was drawn into the wound a firm, indurated mass was encountered, approximately 2 x 3 inches, involving the anterolateral aspect of the cecal wall and apparently projecting somewhat into the lumen of the bowel. Firm, enlarged nodes were palpated in the mesentery of the cecum and terminal ileum. The operator, uncertain of the diagnosis but suspicious of malignancy, decided on local resection. The McBurney incision was enlarged upwards and by a transverse extension and an ileocecal resection was carried out with anastomosis of ileum to ascending colon.

Pathological Report: Firm, nodular mass measuring 4 x 3 x 3 centimeters on anterolateral aspect of cecum. Mucosa overlying mass intact except for ragged area approximately 1.8 centimeter in diameter. On section mass extends through all layers of cecal wall. Cut surfaces white and gritty, obliterating normal structure of the bowel. In mesocolon and retroperitoneal tissue are firm, discrete lymph nodes, homogeneous on section. Microscopic diagnosis: acute diverticulitis of cecum with pericecal abscess.

Course: Extremely benign, with anastomosis protected by Miller-Abbott intubation. Patient discharged to convalescent leave on eleventh postoperative day.

Comment: Solitary cecal diverticulitis, although a relatively rare disease entity, is one which may be encountered in any celiotomy for acute appendicitis, and the surgeon alerted to the possibilities of the condition will find recognition easier. The diverticular nature of the disease was obvious in many of the cases reported in the literature. In cases with extensive ileocecal involvement, however, there may be great difficulty in realizing the nature of the lesion. Differentiation of this disease grossly from ileocecal tuberculosis, regional ileocolitis, actinomycosis, and especially carcinoma of the cecum requires skill and experience. Where resection seems justified because of advanced involvement of the cecum, interference with cecal blood supply or the possibility of malignancy, the hard-pressed surgeon has to attempt to avoid either a too radical resection for a minimal disease or a too limited resection in the case of carcinoma.

This dilemma in surgical treatment is well illustrated by the case summarized above. Here the surgeon in his diagnostic uncertainty compromised on a minimal resection but awaited the pathologist's report with doubt and misgiving, knowing full well that a report of cecal malignancy would mean subjecting the patient to a second far more radical and less satisfactory surgical ordeal than had a cancer operation been done as a primary procedure.

*Ileocecal Tuberculosis*

Intestinal tuberculosis is not commonly encoun-

tered in the surgical practice of a general hospital. Secondary ulcerative tuberculosis of the bowel is a serious complication of advanced pulmonary tuberculosis found mainly in sanitarium-treated patients and is not amenable to surgical treatment. Primary hypertrophic intestinal tuberculosis which involves almost invariably the ileocecal loop and might be resectable for cure is a relatively rare disease in this country. Davis[6] in 1933 could report only 29 cases of hypertrophic intestinal tuberculosis treated during an admission period in which 1,123 cases of carcinoma of the colon appeared. The third and rarest type of intestinal tuberculosis, primary ulcerative enteric or enterocolic, is so unusual that its finding in an adult would constitute a pathological curiosity.

That intestinal tuberculosis may be encountered, however, and that it may even simulate acute appendicitis is evident from the following case summary.

Case VII. Ileocecal and Peritoneal Tuberculosis

J. D. B., male of 21, admitted October, 1947. Crampy pain in midabdomen accompanied by nausea and vomiting began 72 hours before, later settling in lower abdomen, more acute in R.L.Q. Sent in by college physician as acute appendicitis. Past history of short episode of pleuritic pain in 1946 obscured by two-week attack of measles. Onset of suggestive peptic ulcer symptoms in May, 1947, with periodic epigastric pain, bloating, and occasional vomiting to relieve fullness. Gradual weight loss with decreased food intake. No previous attacks similar to presenting episode.

Pertinent physical findings and laboratory studies: Chest considered normal by examiner. Well marked direct and rebound tenderness in R.L.Q. with resistance in cecal region suggestive of small tender mass. Temperature 98. W. B. C. 6,100, polys 61 percent. Hemoglobin 12 gms. Diagnosis of acute appendicitis made and laparotomy advised.

Operation: McBurney incision. Appendix normal. Cecum and about 15 inches of terminal ileum involved in a hyperplastic tuberculous process with chronic inflammation, marked thickening and nodulations from tubercles. Both parietal and visceral peritoneum throughout the abdomen studded with small tubercles. Firm, enlarged lymph nodes throughout small bowel mesentery. Obstruction from encroachment on bowel lumen seemed imminent in terminal ileum. Resection seemed inadvisable to operator because of widespread peritoneal involvement. A short-circuiting side-to-side ileotransverse colostomy was done through a vertical incision after closure of McBurney wound. Biopsy taken of a matted mass of nodes in mesentery of terminal ileum was read as conglomerate caseous tuberculosis.

Course: Uneventful as far as abdominal surgery concerned, but patient ran elevated temperature for ten days and chest studies showed extensive reinfection tuberculosis in upper half of right lung with pleuritic effusion. Temperature returned to normal under streptomycin and patient gained 18 pounds before transfer to sanitarium for prolonged care. Free of abdominal pain, and bowel movements normal on transfer.

Comment: The author does not feel qualified to offer much comment on this case, from both the meagerness of his personal experience with the disease, and his inability to discover any discussion of a similar pathological picture in the literature available to him. The principal gross operative finding in this patient was hypertrophic ileocecal tuberculosis, and in the absence of peritoneal involvement, primary resection would have been justified. Ileotransverse colostomy was done not only to relieve the impending obstruction but in the hope that after a course of streptomycin second-stage ileocolic resection might be accomplished. The postoperative chest findings complicated the picture and probably represented the source of the intestinal and peritoneal involvement.

The exact sequence of progression of the tuberculous process in this case is not as important to the primary purpose of this paper as the fact that a confusing disease complex was presented suddenly to the unsuspecting surgeon.

*Summary and Conclusions*

A number of pathological entities have been presented for discussion, all of which may simulate acute appendicitis and its complications and some of which, when encountered in an acute abdomen, may require far more serious surgical procedures than routine appendectomy or drainage of an appendiceal abscess.

Brief summaries have been presented of illustrative cases operated upon at this hospital, all of which presented acute problems of decision as to treatment and some of which were subjected to rather extensive surgery. There may well be disagreement among surgeons as to the methods employed in these cases. That there is no *one* way of handling a surgical emergency is obvious from even a brief glance at the surgical literature of the world. The most important criterion of any surgical procedure is not the technique employed but that the patient was carried through the ordeal, his disease cured, and his life saved. Any discussion of the surgical management of the cases presented above will only enhance the primary purpose of this paper, which is to point out the difficulties that may be encountered in right lower quadrant explorations and the serious decisions as to treatment which may confront the individual surgeon.

It is of interest in conclusion that the patients whose abdomens presented problems in this series

were all young adult males between the ages of 21 and 41, representing veterans of World War II. This group, isolated by age and sex, probably contains the most favorable clinical material presented to the medical profession in which to achieve a differential diagnosis. The difficulties encountered in exploring young adult males will be many times multiplied in the general population by the anomalies and peculiarities of childhood, inflammation and neoplasia in the aged, and the varied pathological possibilities of the femal pelvis.

The experienced surgeon approaches "acute appendicitis" as one of a number of serious possibilities, with a respect, earned through worry and sweat, for acute disease in the right lower quadrant.

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## THE CLINICAL APPLICATION OF ANTITHYROID DRUGS*

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### Introduction

The obscurity of the fundamental disturbances in the body leading to the development of thyrotoxicosis has interfered with a direct approach in the therapy of this disease. Although much progress has been made in controlling the disease by surgical measures, a great deal is left to be desired, both as concerns the principles and the results of treatment. The ideal therapy is one which is simple, inexpensive, available to everyone, does not require hospitalization, is not associated with significant toxic reactions and does not permit much invalidism. These ideals do not seem to be as reasonable an expectation with surgical treatment as with drug therapy.

In recent years several new tools have become available for the study of the thyroid gland. These include methods for the determination of thyrotropic hormone, goitrogenic drugs including thiouracil and related substances and radioactice iodine. The recent advances which these new tools have made possible, both in the study of thyroid function and in the treatment of thyroid diseases, have overshadowed any advances in this particular field for many years and especially since 1923 when H. S. Plummer established the value of iodine in the treatment of exophthalmic goiter.

### Thiouracil and Related Drugs

In 1943, Astwood announced results of studies on the effects of thiourea and thiouracil in Graves' disease. Many years before, Chesney, Clawson and Webster had noted the goitrogenic effect of a cabbage diet in rabbits. Subsequently, Maine and others determined that this effect was caused by the nitrile

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content of this diet. The Mackenzies then had shown that in animals a similar effect occurs in association with some of the sulfonamides, and chiefly sulfaguanidine. It remained for Astwood to extend these studies and to apply the knowledge thus gained to the treatment of Graves' disease.

Two series of chemical compounds were found to possess the unique property of inhibiting the endocrine function of the thyroid gland. The first of these was the sulfonamide series. Similar changes in the thyroid were observed in rats treated with thiourea derivatives.

More than 100 compounds were tested by Astwood in order to select highly active substances of low toxicity for clinical use. Most of the derivatives of thiourea exhibited some activity but varied widely in toxicity. 2—thiouracil was the most highly active compound tested and thiourea itself was the least toxic of all.

From the clinical point of view thiourea and thiouracil appeared to be the most promising compounds and were the first used in normal persons and on patients with hyperthyroidism.

*Mode of Action of Thiouracil and Allied Drugs*

Paschkis and his associates found that thiouracil prevented the elaboration of thyroxin in the gland by inhibiting certain enzyme activity. It appears that this inhibition involves the oxidase activity in the thyroid gland. By the inhibition of the oxidase reaction the conversion of iodide to iodine is blocked and, consequently, the synthesis of diiodotyrosine is antagonized. That the above is the mechanism of action of thiouracil and related drugs is suggested by the depletion of colloid in the glands of treated animals. The profoundly decreased metabolic response to thyroid stimulating hormone by thiourea treated rats is further evidence that thyroid hormone formation is greatly diminished.

Rawson and his associates found that under treatment with thiouracil the hyperplastic gland in Graves' Disease became more hyperplastic and that thiouracil prevented the proper utilization of iodine by the thyroid gland but that in spite of the latter effect iodine produced involution of the thyroid gland. It is now apparent that the simultaneous administration of iodine with thiouracil-like drugs does not prevent their goitrogenic action.

*Role of Iodine in Treatment with Thiouracil-Like Drugs*

Danowski and Winkler sought to resolve the problem of whether iodine and thiourea had an additive effect or whether iodine hindered the action of thiourea. Their experiments furnished strong evidence against any theory that the action of iodine in hyperthyroidism antagonizes that of thiourea and they don't support the commonly held opinion that preliminary medication with iodine delays the action of thiouracil-like drugs. There is on the other hand considerable evidence that the actions of the two substances are additive. The relapse of hyperthyroidism when iodine alone was discontinued in patients controlled with a combination of iodine and thiourea was felt to be almost conclusive evidence. The quickest and most pronounced remissions occurred in patients who had received and who continued to receive iodine. McGavack felt that a small dose of iodine added to the therapeutic regimen after control of the thyrotoxic state may materially increase the number of permanent remissions.

Since there is no reason to believe that the mode of action of thiourea differs from that of thiouracil or its derivatives, this conclusion can logically be extended to medical treatment with all substances of this class.

*Thiouracil: Clinical Results*

Soon after Astwood announced the discovery of control of hyperthyroidism by thiouracil in Graves' Disease the drug became available to many investigators. Its effect was startling and was obtained with great constancy. Soon, however, various untoward reactions to the drug began to appear and in a short time it became apparent that close medical observation was necesssary.

In 1946, Williams reported the results of prolonged treatment of thyrotoxicosis with thiouracil in 247 cases. The majority of the last 150 patients treated received 0.5 gm. or less of thiouracil daily.

Within a few days after the institution of thiouracil therapy most of the patients noted distinct subjective improvement but it required from 10 days to several months for a clinical remission to take place, the average time being about 5 weeks. All patients eventually experienced a remission of the disease.

With adjustments in the amount of thiouracil given the thyrotoxicosis was controlled in all patients for as long as the drug was administered. No evidence of refractoriness to thiouracil was found and as the manifestations of the disease subsided a smaller dose of the drug was necessary. In some of the patients with malignant exophthalmos there was an increase in the orbital changes, this being particularly true in patients receiving large doses of thiouracil. Patients treated with potassium iodide for a few months or more before thiouracil treatment seemed to respond more slowly to thiouracil and when there was an abrupt substitution of thiouracil for iodine there was sometimes an exacerbation of the disease. In cases previously treated with iodides there was little if any delay in response to thiouracil if iodide therapy was continued and when iodide therapy was begun simul-

taneously with or shortly after thiouracil treatment the response of the disease was sometimes more rapid than when only thiouracil was given.

At the time Williams reviewed his 247 cases in 1946, forty-nine of his patients had gone from 3 to 21 months without any treatment of any type and had remained free of thyrotoxicosis. Fifty-one patients had a relapse of thyrotoxicosis from two weeks to five months after cessation of therapy and sixty-six per cent of the relapses occurred within a month of the cessation of treatment. This suggested that the expected incidence of relapse should not be great in patients who have remained well for a few months without treatment.

In general, the longer the patient was treated with thiouracil the longer was the interval of non-treatment preceding relapse. However, there were notable exceptions to this. Males experienced a relapse much more frequently than females. Neither the age of the patient nor the duration of the disease determined whether relapse occurred. Patients with only slight enlargement of the thyroid gland demonstrated a higher incidence of remissions after the cessation of treatment than subjects with larger glands. Subjects with only slight elevation of the basal metabolic rate preceding treatment obtained sustained remissions more often than did individuals with moderate or marked elevation of the basal metabolic rate. Patients treated for 9 months or longer showed a better sustained response than ones treated for shorter periods. The patients without a relapse on cessation of treatment exhibited a distinctly greater tendency towards decrease in the size of the thyroid gland than did the individuals who experienced a relapse. Finally the incidence of non-relapse did not seem to be correlated with the dosage of thiouracil used. There are no entirely satisfactory criteria to date by which to judge the duration of treatment and to determine which patients are most apt to have sustained remissions.

In the entire series reported by Williams no significant chronic toxic reactions to thiouracil were noted and in none of the 121 glands removed surgically was there any evidence of carcinomatous changes.

*Toxic Reactions to Thiouracil*

The toxic reactions occurring in conjunction with the use of thiouracil in the treatment of thyrotoxicosis were reviewed by Williams, Clute et al. in a total of 1040 cases of which 247 were in their own series and 793 reported in the literature.

The types of toxic reactions that have occurred consist of edema of the legs, headaches, nausea, vomiting, diarrhea, jaundice, hematuria, anemia, leukopenia, agranulocytosis, purpura, fever, urticaria, skin rash, arthritis, lymph node enlargement, enlargement of submaxillary salivary glands, oral sepsis, psychosis and periarteritis.

It is difficult in some instances to be sure whether the drug has had any relationship to certain of the supposed reactions since it must be remembered that patients are not invulnerable to other diseases just because they are taking thiouracil.

Most of the toxic reactions can be accounted for on the basis that thiouracil might, in some individuals, produce a state of hypersensitivity, due to an alteration in the patient's protein. In the series of Williams and Clute toxic manifestations developed in 14.5%. The most significant toxic manifestations of leukopenia and agranulocytosis developed in 5.2% and 1.2% of the cases respectively. In 793 other cases 4.8% developed a leukopenia and only 0.6% agranulocytosis. Agranulocytosis had been reported after as little as 7 days of treatment, after a year of continuous treatment and six months after treatment was stopped. The most frequent time for the development of agranulocytosis is between the 4th and 8th weeks of treatment and dosage appears to have little or no relation to the time of onset. *Deaths* resulting from treatment have been reported by several authors.

The discontinuation of thiouracil is the most important factor in treating reactions to the drug and in addition antibiotics and other supportive measures are indicated and it is well to remember that repeated courses of the drug cause toxic reactions more often than if treatment is continuous.

*Conclusions*

Significant in the early history of thiouracil was the varied response it received throughout the medical world. At first it was hailed as a panacea which would ultimately displace the surgical management of hyperthyroidism. This enthusiasm was short-lived and rejection by many replaced the early acclaim, for the toxic effects appeared to outweigh the potential value of the drug. With the accumulation of more clinical data there is now a more moderate outlook for some thiouracil-like drug that is less toxic than thiouracil.

In light of the clinical results obtained with the use of thiouracil it is evident that the drug has distinct value in the treatment of thyrotoxicosis. The drug is indicated in individuals with severe disease that is refractive to iodide treatment and it is indcated in cases in which the patient refuses surgery. The nature and relative frequency of toxic reactions to thiouracil would appear to be the most significant handicap in a plan to treat most cases of thyrotoxicosis with thiouracil and without thyroidectomy.

Some observers such as Bartels and his associates at the Lahey Clinic, Means and his group at the Massachusetts General and the group at the Mayo

Clinic used the drug chiefly in the pre-operative treatment of thyrotoxicosis. Its success in this respect was striking. Patients with unusually severe hyperthyroidism and those with serious complicating diseases which were aggravated by hyperthyroidism were, after adequate preparation with the drug, so greatly improved that operations were carried out without risk. The complicating factors of hyperplasia of the gland and increased vascularity in patients prepared for operation with thiouracil or related drugs can be avoided by the use of iodine during part or all of the treatment with thiouracil. The accepted procedure is to control the disease with thiouracil, administer iodine for 1-3 weeks preceding operation and to stop the thiouracil therapy one week prior to operation though many utilize a combination of iodine and thiouracil from the outset of treatment with great success.

*Thiourea — Clinical Results*

As mentioned earlier thiourea was one of the first goitrogens studied extensively and its use was discarded because of the relatively high incidence of toxic reactions. However, Danowski and his associates at Yale have reinvestigated its clinical use and have reported that much smaller doses than were given previously are effective despite the fact that it is less effective gram for gram in the production of goiters in young rats. The effectiveness of small doses of thiourea suggested to this group the existence of a peculiar sensitivity or avidity of the hyperthyroid patient for thiourea.

To determine the efficacy and advisability of prolonged medical treatment of thyroid overactivity, all hyperthyroid patients seen by the metabolism service of the New Haven Hospital and Dispensary during a 3-year period from 1945-1948 were treated with thiourea, usually together with a strong solution of iodine. The results of the treatment indicate that the control of hyperthyroidism is possible for long periods in most patients.

One hundred and eighteen patients were treated in whom the diagnosis of hyperthyroidism had been established. Treatment was limited to thiourea in 20 cases while the remaining 98 were given five to fifteen drops of a strong solution of iodine daily prior to, or at the time of the administration of thiourea. The daily intake of thiourea ranged between 280 and 15 mgms.

The response to therapy was, on the whole, satisfactory. Progressive weight loss was either checked or, more often, replaced by weight gain. The pulse rate decreased and the basal metabolic rate fell. Clinical improvement in symptoms and signs such as nervousness, palpitation, vasomotor phenomena and tremor accompanied the gain in body weight, the disappearance of tachycardia and the return to normal of the rate of oxygen consumption and the level of hormonal iodine. In no instance was there any discernible progression in eye signs and in 5 cases subjective and objective improvement occurred.

*Toxic Reactions*

In what now amounts to about 300 cases treated with thiourea by the Yale group for periods up to four years there has not been a single instance of agranulocytosis or significant leukopenia. Two cases of agranulocytosis have, however, been reported by Ritchie and Beddis. Altogether thirty-five patients at one time or another in the course of treatment with thio-drugs, chiefly thiourea, developed complications of some kind. In 17% of the thirty-five cases they felt that thiourea could be clearly exonerated. In one case the drug produced urticaria and three patients had simple febrile reactions appearing between the 7th and 14th days of treatment. Twelve patients had late febrile disorders, usually accompanied by pains in the muscles or joints, sometimes by obvious arthritis and by peculiar multiform skin lesions. Five of these patients died and all were autopsied. These observers felt that it was difficult to establish a direct connection between the thio-drug and the late febrile disorders that occurred in their cases. These febrile disorders appeared most frequently in subjects who were resistant to the action of thiourea. They concluded that a satisfactory assessment of the responsibility of thiourea is impossible, even in the five fatal cases.

Two of the five fatal cases had vascular lesions and one skin lesions that may be produced by drugs and other substances that can provoke allergic phenomena.

Kent and his group found that side effects such as fever, rash and nausea in a series of cases treated with thiourea were considerably more common than in a series treated with prophythiouracil. The incidence of side reactions was 16% in their series of thiourea treated patients.

*Conclusions*

Eight patients have been observed for 5-16 months following courses of thiourea therapy lasting 6 to 24 months. Despite the withdrawal of the drug, body weight changes, pulse rate and basal metabolic rate are still within euthyroid limits in all 8 patients though the serum precipitable iodine level has risen above normal.

The Yale observers on the basis of their experience and the favorable results obtained felt that long term medical treatment of hyperthyroidism was practical. They also felt that a favorable clinical response was elicited, however, only when an optimal therapeutic regimen was employed and this must include the administration of thiourea in effective doses, which

in most patients is between 75 to 210 mg. daily. The clinical response to these amounts of thiourea is enhanced by the concomitant use of a strong solution of iodine.

These additive effects of thiourea and iodine solution have been amply demonstrated in control studies and may be attributed to the capacity of iodine solution to act directly on the thyroid, inducing a resting phase and at the same time blocking thyrotropic hormone which increases thyroid activity.

The ideal therapeutic program should include adjustments in the dose of thiourea once the disease has been brought under control. Otherwise, the continued administration of the drug in the amounts initially used to induce a remission may result in hypothyroidism or myxedema. This can be prevented or corrected by reducing the daily intake to 25 or 50 mgs. or by adding desiccated thyroid to the therapeutic regimen.

These observers felt that failure of the BMR to decrease to normal in about one-fifth of the patients was to be ascribed to an inadequate therapeutic regimen in all but one instance. They also felt that the omission of iodine solution in prolonged treatment may increase the possibility of permanent remission or cure.

Despite the high regard of the Yale group for thiourea as an efficient anti-thyroid drug, the occurrence of five fatalities in their series makes thiourea suspect and would seem to present a strong deterrent to the continued use of this drug especially in view of the fact that compounds that have been proved less toxic are available.

*Propylthiouracil: Clinical Results*

A continued investigation by Astwood of compounds which inhibit the function of the thyroid gland revealed that appropriate substituents on the thiouracil molecule confer a greatly increased activity. Astwood and VanderLaan found that 6-N-propylthiouracil was ten times as active as thiouracil when tested in rats. This drug also had the further therapeutic advantage of a greater activity-toxicity ratio and was less toxic when administered in quantities calculated on the basis of equivalent anti-thyroid effect.

Astwood and VanderLaan used propylthiouracil in 37 patients. The recovery of patients so treated suffering from hyperthyroidism was similar in every regard to the familiar response to thiouracil. It was notable, however, in their series that there was no instance of any of the serious reactions which sometimes complicated thiouracil therapy. None of the 37 patients treated with propylthiouracil experienced any untoward reactions. Dosage was initially between 50 and 150 mg. daily and the maintenance dose was 25 or 50 mg. daily. Four cases of persons proved to possess a strong tendency to allergic sensitivity were reported in the series to show how well propylthiouracil was tolerated in such patients.

In 1946, Astwood and VanderLaan published a report on 100 cases of thyrotoxicosis treated with propylthiouracil. In the early portion of the study the main concern was the determination of a minimal effective dose. As a consequence many patients received doses which later on were regarded as inadequate. The rate and degree of response was significantly more satisfactory in the groups that received larger doses of 100-150 mg. daily.

There was considerable individual variation in dosage requirements. 57% of the patients were eventually completely controlled by daily doses of 75 mg. or less while in the remaining 43% doses of 100 to 150 mg. were necessary. These investigators thus concluded that 150 mg. daily was an appropriate initial dose for severe and moderately severe cases of hyperthyroidism and that, although many cases would respond to less, smaller doses of 75 or 100 mg. daily might best be used only in milder forms of the disease. They recommended the continuation of the initial dose until all manifestations of the disorder had disappeared.

In this series of 100 cases no significant side effects were encountered. Transient itching of the skin was noted by 4 patients and in two of these a frank urticarial eruption was seen. In only one instance was the drug stopped, but treatment was resumed in 48 hours and continued for 3 months without recurrence of untoward symptoms. In the others the itching subsided within a few days without withdrawal of the medication.

The significant finding was that no serious reactions occurred and that in no instance was it necessary to abandon this form of treatment. Five patients were given propylthiouracil after they had experienced severe febrile reactions to thiouracil. In two of these the fever had been accompanied by a significant neutropenia. One of these patients and one other had had febrile reactions accompanied by an extensive skin rash following the use of thiobarbital. In none of these six patients were any untoward effects observed following the use of propylthiouracil.

Astwood and VanderLaan felt that doubtless some sensitivity reactions would be encountered if this compound was extensively employed. However, in the treatment of a serious disease they felt that the absence of significant side effects in 100 consecutive cases indicated that the risk attending treatment with this drug was not a material consideration.

McCullagh et al. reported their experience in the treatment of 218 cases of hyperthyroidism with propylthiouracil. In only 7 patients did they see mani-

festations attributed to toxicity or sensitivity to the drug. Three patients had mild reactions; nausea, arthralgia and numbness. In 3 patients treatment was continued and in 4 cases it was stopped. One patient developed a severe dermatitis and one showed a fall in the granulocyte count to as low as 25% on repeated trials of 75-150 mg. a day.

The final appraisal of the side effects of propylthiouracil on 218 clinical trials coverings an average of 8 months and using doses from 50 to 500 mg. a day seemed to confirm the impression that propylthiouracil is a relatively non-toxic drug.

This group found that at best treatment required several months and for this reason the smaller initial doses of 150 mgm. per day as used earlier have been replaced by doses of 300 mg. or more in moderately severe and in severe disease. Data on the rapidity of response to treatment would seem to indicate that 300 mg. is near the ideal daily dose to be used for the active treatment of hyperthyroidism.

In this series a woman with acromegaly was the only patient with hypermetabolism judged to be at least partly of thyroid origin who did not respond at all to propylthiouracil even with doses as high as 600 mg. Exophthalmos appeared to behave during treatment much as it does after thyroidectomy; namely it remains about the same.

At the Lahey Clinic 13 definite reactions to propylthiouracil were noted in 672 cases treated. This was an incidence of 1.9% as compared with an incidence of toxic reactions of 9% in cases treated with thiouracil and 28% in cases treated with thiobarbital. Most of the reactions involved the blood. Three patients developed agranulocytosis and seven developed either significant leukopenia, granulocytopenia or both. Single cases of fever, skin irritations and scleredema were also observed. In the three cases of agranulocytosis the dosage of propylthiouracil used varied between 75 to 300 mgms. All of these cases responded to treatment with penicillin.

This experience at the Lahey Clinic indicates that propylthiouraci must be administered under careful supervision since serious reactions may occur following its use which need immediate treatment if fatal complications are to be avoided.

*Conclusions*

The final place attained by any surgical or medical means for the clinical management of hyperthyroidism depends largely on its ability to produce a lasting remission or permanent cure. Insufficient time has elapsed in the use of propylthiouracil to make any sound statement on this phase of the problem. Time may reeval, however, that this point is not very important, provided the drug proves to be safe to use for long continued periods — which seems likely with the lessening of the danger of agranulocytosis.

Several investigators continue to use propylthiouracil as the total treatment of hyperthyroidism and because of varied programs that are being followed a few years more should allow adequate evaluation. As a preparation for thyroidectomy, propylthiouracil combined with iodine has been extremely successful.

## Radioactive Iodine

*Introduction*

Finally we come to the remaining drug which has attained a significant status in the treatment of thyroid over-activity. In 1934, Fermi first prepared a radioactive isotope of iodine. In 1938, Hertz, Roberts and Evans working in Boston and Hamilton working in California began studies with radioactive iodine and it soon became obvious that these substances were to occupy an important field in thyroid investigation.

Hamilton and Hertz found that the normal thyroid gland concentrated about 20% of an administered dose of radio-iodine and patients with exophthalmic goiter had glands which collected much larger amounts, many of them concentrating 80% of the dose. Soon after initiation of its use in thyroid investigation radio-iodine began to be considered as a possible therapeutic agent in thyroid disease.

*Clinical Results*

The first comprehensive reports in the literature were those of Hertz and Roberts and Chapman and Evans in 1946. Hertz and Roberts reported the use of radioiodine in 29 cases of proved hyperthyroidism. No adverse effects, such as fever, nausea or irradiation sickness were noted in this series of patients. Following the administration of radioactive iodine routine iodine in the usual dosage was given, begun one day to several weeks after the dose of radioiodine. In most cases after a period of 2-4 months following radio-iodine administration, routine iodine treatment was stopped when an essentially normal basal metabolic rate had been maintained on iodine for a few weeks or months. Failure of the basal rate to rise after cessation of iodine was interpreted as positive evidence of remission whereas rise of the basal rate was considered evidence of failure of internal radiation.

In 9 cases cure was not obtained and in 20 cases cure was obtained. In the earlier cases the dosage administered was not uniformly effective. As experience with the drug increased the total activity administered was increased from values in the vicinity of one millicurie to a maximum of 28 millicuries without the occurrence of even temporary immediate reactions. As this series was followed, no clinical evidence appeared to show that there were any undesirable effects in the range of activities used. No case of carcinoma of the thyroid has appeared

and it seems unlikely that such a condition will arise from this form of treatment at dosages used.

In the 20 successful cases the thyroid gland became normal in size in all but three and in these there was a decided reduction in size. No undesirable complications such as tetany or loss of phonation occurred and there was no tracheal or laryngeal irritation. No anemia ensued in any patient and no one of these 20 patients developed a permanent myxedema at the dosage level used.

Chapman and Evans reported on a series of 22 cases of hyperthyroidism treated only with radio-iodine and with higher doses then those used by Hertz and Roberts. They used an average total dose of 40 to 50 millicuries and the largest single dose was 79 millicuries.

In summarizing the results of treatment in their 22 cases, Chapman and Evans stated that, as with other methods of treatment, there are good results, surprising affects and some poor results and disappointments.

The average length of time for the complete response to this treatment was about 7-8 weeks which is longer than the time required for the response to iodine or thiouracil. The rate of response appeared to be in reasonable relation to the probable loss of previously formed thyroxin. The larger goiters did not respond to treatment as quickly as the smaller ones. These investigators felt that ordinary iodine was not necessary in conjunction with radio-iodine therapy and that it was advisable to withhold ordinary iodine for several weeks before administering radio-iodine in order to assure maximum uptake by the thyroid of radio-iodine. The lack of iodine in the gland may be a condition that favors a better response to radiation.

In this series the toxic reactions to large doses of radio-iodine were much like acute roentgen ray sickness. Nausea, vomiting, malaise and even slight enlargement of the thyroid gland and fever occurred. These reactions lasted two days at the most. No subsequent ill effects or leukopenia were noted.

Chapman, in 1948, reported results of treatment in 45 cases. 41 patients responded well. On the basis of these cases he feels radio-iodine is an effective single therapeutic agent.

Soley and Miller reported results of treatment in 33 cases. In 25 cases the results were considered good in that the patients returned to normal in about 4 months. In 8 patients the results were unsatisfactory and on the whole these patients had larger goiters, higher basal metabolic rates and higher protein bound iodines than the successfully treated cases.

In their cases, Soley and Miller found that often within 24-72 hours after radio-iodine has been given there was tenderness in the thyroid and that there was an increase in the level of protein bound iodine. From the 4th to the 10th day or longer there was an increase in the symptoms of hyperthyroidism. They felt that these phenomena indicated destruction of the thyroid from radiation and the release of its previously stored hormone.

In another series of cases Soley and his group reported satisfactory results in 42 of 46 cases. In 4 patients the response was slower and and this was thought to be the result of a conservative approach to treatment in the early phases of the study. They reported that in 66% of 68 patients there was no change in the prominence of the eyes. In 25% there was a definite but minimal increase and in 8½% there was a marked increase in the prominence of the eyes. In their experience an increase in exophthalmos occurred less frequently than in surgically treated patients and more frequently than in patients treated with X-ray.

Prinzmetal and his group reported their results in 50 patients with uncomplicated hyperthyroidism treated with radioactive iodine. Euthyroidism was restored in 25 of 26 patients followed for one year or longer and the average time required for return to a euthyroid state was three to four months. Hypometabolism developed in 3 patients and one presented signs and symptoms of myxedema. The authors felt that radio-iodine appeared to be an effective therapeutic agent in the management of patients with thyrotoxicosis.

Prinzmetal and his group also reported on the treatment of several problem cases of toxic diffuse goiter with radio-iodine. They felt that surgical management was satisfactory in most cases but that the situation was surgically unsuitable in (1) patients with multiple recurrences of thyrotoxicosis after previous adequate surgical removal of thyroid tissue, (2) patients with severe congestive heart failure, (3) patients with extreme emotional instability or frank psychosis and (4) patients with unusually severe toxicity difficult or impossible to control by antithyroid drugs of the administration of inorganic iodine. Such patients may be successfully treated with radio-iodine. This group obtained the poorest results in cases of excessive toxicity.

Williams et al. treated 97 patients with radio-iodine and produced a persistent remission in 92 cases. Most of these patients became euthyroid within 6 months and the average time required for return to the euthyroid state was 3 months. The goiter was reduced in size in all instances. Three patients developed persistent myxedema and in 16 others transient hypothyroidism resulted. No significant untoward effects were manifested by non-thyroid tissues.

From Presbyterian Hospital in New York, Werner and his group reported 103 cases of toxic goiter

treated with I-131. About 92% of all the patients treated were relieved of hyperthyroidism. They felt that this therapy should be restricted in general to the older age groups with primary previously unoperated goiters. They also felt this was the method of choice in treating recurrent toxic goiter when there had been previous surgery for hyperthyroidism.

*Conclusions*

It is now apparent that radioactive iodine is an effective therapeutic agent. The proper total dosage of the drug and the ideal treatment schedules are not yet known. The groups at the Massachusetts General Hospital and the Mayo group are using much larger single and total doses than the group at the U. of California Hospital. The therapeutically effective dosage range would seem to be between 5 and 25 millicuries with the choice of dose largely a function of the clinical estimation of the size of the goiter being treated.

Typical cases of hyperthyroidism respond to this form of treatment in such a manner as to make it possible to venture the prediction that this therapeutic agent may in time replace the surgical approach now used. When radio-iodine is readily available to the medical profession this form of treatment may well prove itself not only highly effective, safe and noninjurious, but also cheap and of little inconvenience to the patient.

Two questions of concern with isotopic treatment are (1) will the gamma rays be carcinogenic, and (2) what are the damaging effects to other parts of the body? These questions can only be answered with the passage of time.

It is unfortunate that the greater number of cases of carcinoma of the thyroid do not show much tendency to collect iodine, though several investigators have reported control of metastatic lesions from carcinoma of the thyroid by means of radio-iodine.

## Conclusions

In view of the fact that three relatively good types of treatment are available for thyrotoxic patients, the question often arises as to which is the best treatment — surgical intervention or the administration of thio-drugs or radioactive iodine. There are advantages and disadvantages in any type of treatment and the treatment of choice varies with the individual case. However, there exists a fairly large proportion of patients in whom any one of the three available types of treatment is optional and may be determined partially by the temperament of the patient and by the physician.

There are several factors which help govern the usefulness of various types of treatment. Treatment by means of surgical intervention presents a number of problems that need not occur with either of the other forms of treatment. Emotional, social and financial adjustments must be made by the patient. In addition the complications of surgery must be considered. Statistics indicate that these risks are not inconsiderable. The mortality associated with thyroid surgery ranges up to 3% and is undoubtedly higher in smaller clinics. Moreover, both recurrence of hyperthyroidism (13-24% of cases) and postoperative myxedema are not infrequent sequellae of thyroidectomy.

Medical treatment is the treatment of choice in the elderly patient, in the cardiac and in those with hyperthyroidism recurring after thyroidectomy.

Treatment with thio-drugs would seem to offer more opportunity for development than would either the use of radio-iodine or surgery since many hundred compounds of this type remain unexplored. Also, this type of therapy is available to larger groups than either of the other types.

In conclusion it can be said that the proof of the treatment of any disease lies in the practice thereof, and that for a sufficient length of time and under adequately controlled circumstances. Forms of treatment ultimately survive or disappear in accordance with the impression they make on dispassionate yet qualified observers. Time is a requisite, a sine qua non, in their appraisal.

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# ESSENTIALS OF PROCEDURES FOR COMMITMENTS TO THE NEUROPSYCHIATRIC HOSPITAL, VETERANS ADMINISTRATION CENTER, TOGUS, MAINE*†

Israel Zeltzerman, M. D.**

*Purpose of Commitment*

The purpose of commitment proceedings is to provide for the lawful restraint of an insane person. The provisions of the statutes of Maine relating to the commitment of an insane person apply with regard to veterans and non-veterans except that only those eligible under Veterans Administration laws and regulations for hospitalization may be committed to a Veterans Administration hospital.

*Initiation of Commitment Proceedings*

Proceedings for the commitment of the person alleged to be insane are instituted by filing a complaint, which must be signed by either a Justice of the Peace, Notary Public, a blood relative, or the husband or wife of the veteran. The complaint may be directed to either the municipal officers of the town or city in which the insane person is found or to a Judge of Probate in the county where the person is found. These forms may be obtained from Department of Institutional Service, Augusta, Maine. The complaint sets out that the person to be committed is insane and that the safety and comfort of such person and that of others interested will be promoted by committing him to a hospital. When such complaint is filed in the Probate Court it must be accompanied by the certificate of a reputable physician stating that in his opinion such person is insane. (Revised Statutes of Maine, 1944, Chapter 23, Sect. 111.) There is no such provision where complaint is made to the municipal officers of a town or city. However, it is considered safe practice to furnish such certificate to the municipal officers when the complaint is filed.

*Notice*

Notice of the day of hearing on the complaint must be given to the alleged insane person at least 24 hours before the date of hearing. Service of the notice, which must be made by civil officer, is given by delivering in hand to the alleged insane person a true copy of the Complaint, Certificate of Physician and the Order of Notice of the Probate Court or municipal officers.

*Hearing*

The person to be committed should be present at the hearing unless such presence would be injurious to him or his condition is such that he would not be able to understand the nature of the proceedings. This rule is followed in all commitment cases handled by the Chief Attorney's Office at the Veterans Administration Center, Togus, Maine. The presence of the person to be committed is not, however, essential to due process if he was given legal notice of the

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hearing. Both Section 105 and 111 of the statutes provide that the person to be committed "has the right and will be given the opportunity then and there to be heard on the matter." All the evidence required by the statutes should be presented before a commitment can legally be ordered by the court. The statutes specifically require, Revised Statutes, 1944, Chapter 23, Sections 107 and 112, that the evidence of at least two reputable physicians shall be given and that they shall file with the Probate Court or with the board of municipal officers at the time of the hearing a certificate setting out that in their opinion such person is insane. This evidence must be based upon actual inquiry and personal examination of the alleged insane person. An osteopathic physician is not authorized to sign the certificate.

*Decree of Court*

If, after the hearing, the municipal officers or the Judge of Probate are of the opinion that the person complained against is insane and that his comfort and safety and that of other persons interested would be promoted by his commitment to a Veterans Administration Hospital, a formal judgment is rendered.

*The Certificate of Commitment*

The certificate of commitment issued by the Probate Court or by the municipal officers is the legal authority for the person in charge of the hospital to detain the insane person until he shall have recovered or shall have been discharged by the court. A certified copy of the certificate signed by the two physicians and filed with the Probate Court or the municipal officers must accompany the certificate of commitment.

In emergency cases, pending the issuance of the certificate of commitment, a patient may be admitted if accompanied by a certified copy of the complaint and a certified copy of the two physicians' certificate. In an emergency case, the physicians' certificate must set forth "that in the judgment of the physicians the condition of said person is such that immediate restraint and detention is necessary for his comfort or safety or the safety of others."

*Discharge of Patient*

The officer in charge of the Veterans Administration Hospital may discharge anyone so far restored that his comfort and safety and that of the public no longer requires his confinement. (P. L. of Me., C. 230, S. 18.) Admissions to Veterans Administration hospitals and discharges from Veterans Administration hospitals are governed by regulations issued by the Administrator pursuant to the Federal law; although the Veterans Administration as a practice conforms with State procedures when veterans are committed to it.

*Emergency Commitment Proceedings*

Emergency commitments are occasionally necessary. It is generally held that where a patient is dangerous to himself and others in the community, he may be temporarily restrained and placed in an institution without judicial proceedings. It should be noted that the right to restrain such a person is limited to actual insanity and immediate danger. Insanity which does not render the insane person dangerous to himself or others is not a lawful excuse for restraint without judicial proceedings. The statutes of this state provide for an emergency commitment where immediate restraint is necessary. (Revised Statutes, 1944, Chapter 23, Section 106.)

An emergency commitment is instituted by presenting the regular form of complaint, signed by a Justice of the Peace, Notary Public, a blood relative, or the husband or wife of the alleged insane person, to the Probate Court or the municipal officers of the city or town in which the insane person is found. The complaint must be accompanied by the certificate of two reputable physicians stating that the person to be committed is insane and immediate restraint and detention is necessary for his comfort or the safety of others. Upon receipt of the complaint and the certificate, the Judge of Probate or the municipal officers set a date for hearing of the complaint. A certified copy of the complaint, order of notice, and the physicians' certificate is served on the alleged insane person.

The official in charge of the hospital is authorized to detain such person if upon his admission the official is presented with a certified copy of the complaint and the two physicians' certificate. Detention under such procedure is valid for a period of 15 days only from the date on which the person was taken into custody. During the 15-day period, the municipal officers or the Judge of Probate holds a hearing on the complaint. All the evidence required under the statutes, i.e., the certificate of and the testimony of two physicians based on due inquiry and personal examination, must be given. The presence of the alleged insane person is not necessary to due process since he has been served with notice. However, if he desires to appear, he shall be allowed to do so. The Certificate of Commitment must be sent to the officials of the hospital in which the insane person is detained, together with a certified copy of the certificate of the two physicians filed at the hearing, within the 15-day period.

*Voluntary Patient*

Any veteran can voluntarily submit himself for treatment of a mental disorder providing that his "mental condition in the opinion of the superintendent or physician in charge is such as to render him competent to make the application." Because of the physical set-up in the Neuropsychiatric Hospital at Togus, it is necessary for voluntary patients to sign a statement signifying that they are willing to enter a "locked ward." It is the policy of the Veterans Administration to avoid commitments unless necessary.

*Discharge of a Voluntary Patient*

A veteran who voluntarily enters the Neuropsychiatric Hospital for treatment must be discharged within 10 days after he has filed a written request for his discharge, Revised Statutes of Maine, Chapter 23, Section 116, unless he is found to be insane. Upon receipt of request for discharge, if the patient is considered insane, steps are taken to institute commitment in accordance with the statutes.

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## SUPRALEVATOR ABSCESS CAUSING URINARY OBSTRUCTION*

Meyer Emanuel, M. D.**

We present this case of a 52-year-old male with urinary bladder obstruction due to a supralevator perirectal abscess with no glib or pedantic admonition to keep one more "simple" diagnostic possibility in mind.

Rather we hope it may serve to point again to the recognized difficulty in arriving at a diagnosis when confronted by simultaneous but obscure abdominal, rectal and urinary symptoms along with the earmarks of a suppurative focus.

The large number of articles and textbook discussions on periurethral phlegmon, perirectal abscess and intra and extraperitoneal pelvic inflammations are good enough testimony to show how easily one of these conditions may be mistaken for the other.

Further it may illustrate that urinary bladder obstruction occasionally is not due to the various forms of prostatic hypertrophy, vesical neck contracture, prostatic congestion in old decompensated cardiacs, or urethral stricture—which conditions can often justifiably be taken for granted.

In published discussions of perirectal abscess the authors frequently mention the presence of urinary symptoms including at times bladder obstruction. But from the urological point of view the symptoms and course are not elucidated in detail. In this instance, happily it was possible to obtain a close focus upon the urinary picture which we felt was worth recording.

He was admitted 7-17-48 complaining of a gradually increasing burning rectal pain, difficulty in starting the urinary stream, scanty voidings, suprapubic discomfort, and vague diffuse abdominal pain. These symptoms began approximately 2 weeks before admission at about which time he had used some sort of mechanical apparatus for rectal or colonic irrigation. His past history showed gonorrrhea 30 years before, and chronic constipation for which he had been taking frequent laxatives since 1919. He had an appendectomy 11 years before, and hemorrhoidectomy 6 years before the present admission. Hospitalization records as far back as 1934 showed diagnostic impressions of chronic constipation, spastic rectal sphincter, chronic gastritis, and chronic lumbar arthritis. One month before admission he had pneumonia for which he was given penicillin. In all his past records he had no genito-urinary complaints, and all the routine urine specimens were normal (i.e., clear, no albumin or sugar and no more than an occasional to 2-3 WBC per high power field).

In spite of the increasing difficulty in starting the urinary stream and scanty voidings there was no prominent urinary irritability. Burning on urination and nocturia were absent. There was a diurnal frequency of only 3 times! There was no hematuria or pyuria. During the earlier hours of admission the urine was clear, straw color, acid, S. G. 1.025, albumin and sugar negative, and the microscopic examination showed only 1-3 WBC per high power field. The white blood cell count was 11,600. Blood Kahn was negative. The temperature was normal.

The initial examination showed an apathetic male, a well-healed old McBurney appendectomy scar, diffuse mild abdominal tenderness referred to the true pelvis, and what was thought to be an enlarged prostate gland, firm and tender particularly on the right side.

Two days later the abdomen was soft without

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* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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tenderness. Rectal examination failed to find the familiar landmarks. The prostate gland which was rather high in position was poorly defined, somewhat congested and appeared to be continuous with a large bulging mass in the right perirectal area. Fluctuation over this mass or the prostate was not evident. Both showed a confusing tenderness. The patient voided into two glasses. Both small specimens were clear but showed shreds,—most numerous in the first glass. A No. 18 Fr. rubber catheter entered the bladder very easily. There was no evidence of stricture. 350 c.c. of clear residual urine was obtained, which on culture showed no growth. A diagnosis of prostatic abscess was probable but not conclusive because of the absence of infected cloudy urine and urinary irritability. The catheter was left indwelling.

During the next six days of admission the temperature ranged irregularly between normal and 100°F. He received mixed sulfones and penicillin. Since introduction of the catheter the urine showed 1 plus albumin, many WBC and 5-10 RBC per high power field. The white blood cell count rose to 14,000 with 83% polymorphonuclear leukocytes. The sedimentation rate was 113 mm. per hour. The blood urea nitrogen was 16 mgs.%. During this period the rectal bulge grew larger as compared to the prostate. An aerogram and cystogram of the bladder showed severe left deviation of the catheter shadow from the normal midline position.

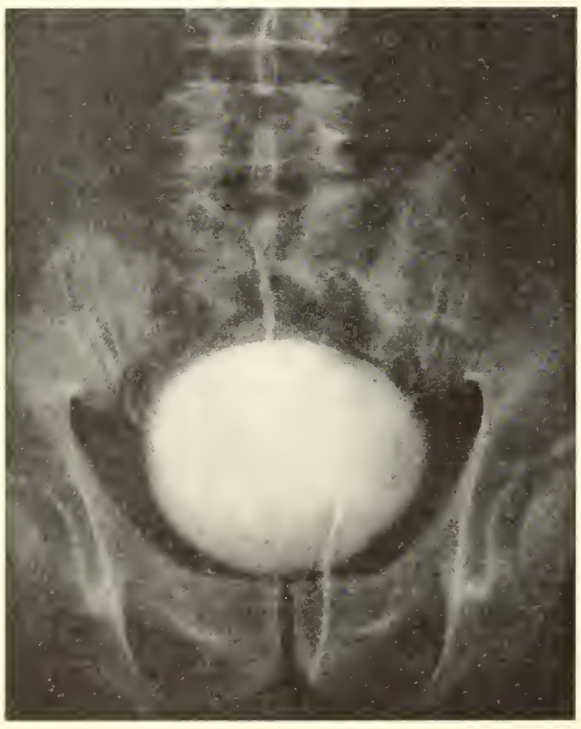


Fig. 1

Cystogram showing the indwelling Foley catheter displaced considerably from right to left well beyond the midline.

A visiting consultant described a large indurated mass on the right side of the rectum extending laterally and posteriorly. The prostate gland on the right side could not be identified but on the left was small and uninvolved. He felt that a prostatic abscess would be diffuse and involve both lobes. An impression of early ischiorectal abscess was offered because at this time the right buttock and perianal area did not yet show the swelling, rubor and tenderness of the full blown stage. Drainage through a perineal incision was advised.

On the sixth day of admission, with the patient in the lithotomy position, the right half of the usual incision for exposure of the prostate gland was made. The central tendon of the perineum and the right transverse perinei muscle were brought into view. With the finger the right leaf of the levator ani was explored and at a point close to the rectal sphincter a necrotic area easily gave way permitting the finger to plunge deeply into the supralevator space. Through this aperture about one and a half ounces of pus was evacuated by compressing the rectal bulge with another finger. The cavity was loosely packed with iodoform gauze and drained with a rubber dam. Culture of the pus showed Staphylococcus aureus.

The important subsequent event was the patient's prompt ability to void freely the next day when the catheter was withdrawn. There was no further urinary disturbance.

For completion we add that the skin incision was allowed to close too early thus permitting a small secondary ischiorectal or infralevator abscess to form, which required another incision and prolonged the hospitalization. The pus on this occasion showed B. Coli.

Omitting much descriptive anatomical detail, the supralevator type of perirectal abscess is one that occurs in the true pelvis within a potential space whose floor is chiefly the levator ani and its overlying fascia; and roof, the reflected peritoneum. An abscess developing within this space which contains loose areolar connective tissue would be in contact with one or more of the pelvic organs. In the male this would mean the bladder, prostate gland, seminal vesicles, vasa deferens, lower ureters and the rectum. In the female, the urethra, bladder, vagina and the lower part of the rectum.

It can be readily seen that such a collection of pus would be capable of producing a mixture of symptoms referable to the lower abdomen, bladder, prostate and rectum, depending upon the size and direction of spread. Supralevator abscesses have been known to simulate the picture of acute appendicitis.

In our patient the abdominal picture was not persistent, but difficulty arose in differentiating prostatic from perirectal abscess. An infralevator (or

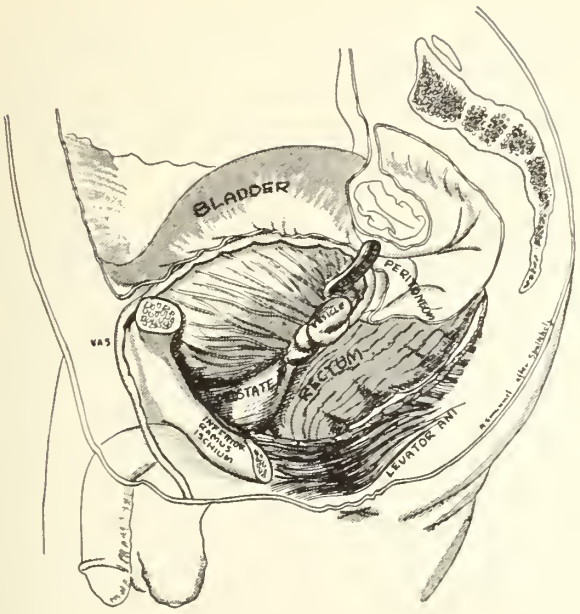



Fig. 2

Showing relations of the bladder, prostate and rectum in the supralevator space. Below the levator ani, is the ischiorectal or infralevator space.

ischiorectal) abscess was suspected but a supralevator purulent pocket was found, which by its increasing pressure pushed the prostate to the opposite side and anteriorly to produce bladder obstruction.

Full discussion of perirectal abscess lies outside the intended purpose of this report. However, it is important to mention that it is generally agreed that the supralevator is not as common as the infralevator type. Most physicians are fully acquainted with the red swollen, tender, fluctuant buttock of the 'ripe" ischiorectal or infralevator abscess. Nevertheless, in the opinion of some writers more supralevator abscesses occur than are recognized—for the obvious reason that they are hidden from early view — and rectal examination is often skipped.

What starts a supralevator abscess? The older writers have contended it is initiated outside the rectum in the male or female genital tracts, urinary tract, colon, appendix and other parts related to the true pelvis. New knowledge of the lymphatic drainage of the anus and rectum, however, now has led some authors to insist upon the anorectal region as the more important source. This implies infection about the mucocutaneous line in the form of cryptitis, hemorrhoids, fissure, foreign bodies, trauma by hard stools and instrumentation including injections.

In the case at hand the obvious finding was a perirectal abscess above the levator ani. The probability of prostate gland origin was present because of the shreds in the urine suggestive of chronic prostatitis and the ancient gonorrhea which could be expected to have left a chronic infection in its wake. It would be difficult to rule out prostatic origin dogmatically. The weight of evidence, however, points to an anorectal origin. Since 1934, at least, this patient is known to have had no genitourinary symptoms and all routine urines examined during this period were normal. At the time of the present admission before catheterization the urine was clear without infection. The urinary disturbance was not one of irritability as in active cystitis or prostatitis, but simple mechanical obstruction at the prostatic and vesical neck level by outside pressure, quickly relieved when the latter was removed. Further there was a history of constipation requiring frequent laxatives for 29 years, a spastic rectal sphincter, hemorrhoidectomy, and very probable recent trauma through the use of some rectal irrigating apparatus. Finally, by palpation the diagnosis of prostatic abscess was not as convincing as that of a perirectal suppurative process.

## Summary

A case of urinary bladder obstruction in a male, caused by a supralevator abscess and relieved by evacuating the latter, is reported in detail.

Difficulty of diagnosis in suppurative inflammations about the true pelvis, frequency of occurrence and etiology of supralevator perirectal abscess, are briefly and incidently discussed.

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# APICAL LUNG TUMORS WITH REPORT OF A CASE*

JOHN F. LOUGHLIN, M. D.**

Attention was drawn to tumors in the region of the pulmonary apex by Pancoast[1] in 1924 when he reviewed four cases of such, commenting on their characteristic symptomatology and cervical sympathetic involvement. Three of the cases had biopsies with pathological reports of endothelioma in one, metastatic carcinoma in another and primary carcinoma of the lung in a third. None of the cases were autopsied. Pancoast concluded that such tumors with a characteristic symptom complex were endotheliomas of the pleura or possibly sarcomas of bony origin. The outstanding clinical features were shoulder and arm pain, Horner's syndrome on the involved side, infiltration of ribs and vertebrae, and an apical pulmonary tumor and shadow by X-ray.

Later, in 1932, Pancoast[2] reported cases similar to those previously described but he then concluded that these were specific tumors arising in an embryonal epithelial rest and classed them as "Superior Pulmonary Sulcus Tumors." Other names subsequently attached to these tumors have been "apico-costovertebral syndrome," "cancer of the thoracic pulmonary apex," "sulcus tumor," "primary apical lung carcinoma," "extrapulmonary tumors of the thorax," "sternoclavicular branchiomas," "tumor of the superior thoracic inlet" and "Pancoast Syndrome."

However, it has been shown that the clinical picture described by Pancoast can be portrayed by many different types of neoplastic disease and that it is the location of the lesion which is responsible for the train of clinical events and not its histological nature. The presentation of a case of an apical pulmonary neoplasm with shoulder and arm pain, rib destruction and Horner's syndrome is considered to be of medical interest.

*Case History:* Patient was a 69-year-old white male, who had been hospitalized eight months previously, complaining of steady sharp pain in the medial aspect of the lower third of the right arm radiating to the right axilla and right breast. He also complained of low back pain, slight shortness of breath and a cough of twenty-five years' duration. He was discharged improved with diagnoses of (1) Hypertrophic arthritis of the entire spine; (2) Generalized arteriosclerosis; (3) Moderate hypertension; after a nine-day hospital stay. Physical examination had not been remarkable except for a moderate blood pressure elevation and evidence of arteriosclerosis. Electrocardiographs, laboratory workup, routine chest plate, et cetera, were all reported as being within normal limits. There was evidence of hypertrophic arthritis of the spine from X-ray reports, of anterior spurring of the cervical and lower thoracic vertebral bodies and minimal spurring in the lumbar spine. Subsequent to his discharge from the hospital he continued to have pain and numbness in his right shoulder and arm. He stated that he had some intermittent dyspnea with persistent cough productive of thick tenacious sputum with lower right-sided chest pain. According to his history, several nights before his second and final admission he had wandered out of the house into the rain and subsequently developed chills with increasingly severe anorexia. He was seen by a physician at that time and arrangements for hospitalization were made immediately.

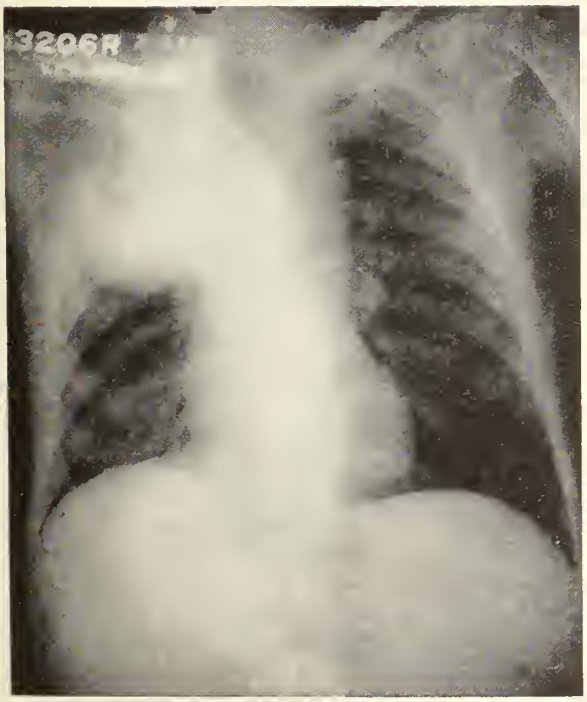
*Physical Examination:* Revealed an emaciated, dehydrated, very ill, elderly male, who had a marked cough and who complained of severe pain in his right shoulder and arm. Temperature was 100.6 degrees, pulse 90, respirations 24 per minute. The neck was supple and no thyroid abnormalities were encountered. There were no cervical masses. The right pupil was smaller than the left and the right palpebral fissure was narrower than the left. There was moderate enophthalmos on the right. The fundi were normal. There was a definite absence of sweating on the right side of the face. Ears, nose and throat were normal. The tongue was dry and there were a few remaining teeth which were carious. Examination of the chest revealed moderate rib tenderness high in the right axilla in the mid-line. There was dullness to flatness over the right upper lobe at the apex anteriorly and posteriorly and dullness to a lesser extent over the right middle lobe with depression of breath sounds in these areas. There was bronchial breathing over the apical portion of the right lung. The heart was not enlarged to percussion, the rhythm was regular. The sounds were of fairly good quality and there were no murmurs or thrills. Blood pressure 114/80. The abdomen was flat, non-tender and there were no masses, spasm or palpable organs. Examination of the rectum, genitalia, and lymphatic system revealed nothing of note. The reflexes were physiological except for a hypoactive right biceps reflex.

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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*Laboratory Data:* Urinalysis, clear, straw-colored, acid, 1.010, negative sugar, negative albumin, 2-3 w.b.c./h.p.f.; WBC — 10,500; hemoglobin, 13.5 gms.%; differential, 81% polys—19% lymphocytes; Kahn, negative; BUN, 16 mgms.%.





*X-rays:* Review of patient's previous routine chest plate revealed that there was a small diffuse shadow of uniform but moderate density in the right apex. The spinal segment of the 3rd right rib was absent and the similar segment of the 4th right rib was indistinctly outlined. (Fig. 1.) This was the apical tumor as it originally had manifested itself by X-ray. X-ray of chest taken at time of second and final admission revealed a very dense homogeneous shadow filling the upper half of the right lung field with a distinct rounded border below. The right lateral aspect of the first three thoracic vertebrae and the proximal 9 cms. of the 3rd rib were not distinctly visualized. (Fig. 2.)

*Course in Hospital:* The patient was started on penicillin 50,000 units I.M. every three hours because of the possibility of secondary infection. He was also given glucose and saline intravenously. For the next eight days he was able to take food and fluids by mouth but he required methadon and codeine to relieve the pain in his right arm and shoulder. He continued to run a low grade fever and on the ninth hospital day his temperature rose to 101.4 degrees, his respirations rose to 36 per minute and he gradually lapsed into coma and expired.

*Autopsy Findings:* An autopsy was performed two hours after death. The primary pathological diagnoses were: (1) Undifferentiated carcinoma of upper lobe of right lung; (2) Chronic pneumonitis of right upper lobe with abscess formation; (3) Toxic hepatitis, splenitis and nephrosis. The pertinent findings were as follows: The right lung in its upper lobe region was bound down to the parietal pleura by dense adhesions. On removing the right lung a cavity was torn open which exuded a large amount of grayish, pus-like material. The whole upper lobe of the right lung was made up of a large cavity with trabeculations and necrotic tissue throughout. No tubercles were found. The second and third ribs beneath the posterior portion of the saccular mass were soft and pliable. There was no other source of the tumor found and there were no metastases found in any other organs. The brain and spinal cord were not examined. *Microscopic examination* revealed the pleura to be replaced by irregular nests and cords of anaplastic epithelial cells with marked variation in size, numerous mitotic figures and dense fibrous stroma. There were areas of necrosis infiltrated with neutrophiles. Sections of lung tissue revealed occasional structures resembling alveoli or glands, lined by cells identical to those described above. The alveolar walls were thickened, showing numerous macrophages, moderate amounts of old blood pigment and abundant necrosis with abscess formation. Some areas showed consolidation with filling of bronchi and alveoli with neutrophiles. There was, in addition, red pulp engorgement of the spleen, fibrosis of the

hepatic portal canals and precipitated protein in the renal tubules with early degeneration of the proximal convoluted tubules. This case, in summary, is one of an undifferentiated apical lung carcinoma which by its local invasiveness had produced the picture of the so-called "Pancoast Tumor." There was a small right apical shadow by X-ray which without doubt represented the tumor in its early stage although even by then it had in all probability invaded ribs and vertebral bodies. The history of shoulder and arm pain being mistaken for an orthopedic condition, especially in the presence of spinal arthritis, and the passing unnoticed of a small apical pulmonary lesion, is not an uncommon one.

It is of interest to note that in 1838, Hare[3] in England, described a case resulting from a rapidly growing tumor in the inferior triangular space of the left side of the neck in a 40-year-old man who had pain, tingling and numbness of the left arm, pain in the left shoulder and a Horner's syndrome on the same side. Death occurred 2½ months after the onset of symptoms. Autopsy showed a "scirrhous" tumor which had involved the carotid and subclavian arteries, corresponding veins and pneumogastric, phrenic and recurrent laryngeal nerves. This pressed on the brachial plexus and extended into the dura of the spinal cord along the course of the 8th cervical and 1st dorsal nerves.

In 1850, MacDonnell[4] described a case of a 17-year-old girl who developed a tumor in the left supraclavicular area with pain in the left shoulder and arm plus Horner's syndrome. At autopsy a tumor of the left lung was found which had gone up into the base of the neck and into the cervical vertebrae. The tumor involved the brachial plexus and cervical sympathetic chain. There were also metastases to the other lung.

In 1918, Ricaldoni (quoted by Romano and Eyherabide)[5] described a lung carcinoma in a 65-year-old man which had extended to the 1st dorsal vertebra producing pain in the shoulder and arm, muscle atrophy of the arm and hand and a Horner's syndrome. In 1921, Freeman[6] reported a case which was believed to have a spinal cord tumor and an operation was performed. Subsequently, a pulmonary apical tumor was found. This case is one of the four originally reported by Pancoast. It is readily seen that the essential features of the symptom complex of the "Pancoast Syndrome" were described before Pancoast's paper in 1924.

Tobias[7] has reported five cases of apical pulmonary tumors with the typical clinical features. Four were primary carcinomas of the lung and one was metastatic from the stomach.

Browder and DeVeer[8] described five cases with post-mortem studies. Three were primary carcinomas of the lung, one was a metastatic hypernephroma and one was a thymic tumor.

Evans[9] describing Pancoast's original report described five clinically typical cases with a different variety of tumor found in each. Frost and Wolpaw[10] described a case caused by a sympathicoblastoma arising from an inferior cervical ganglion.

Herbert and Watson[11] described seventeen cases of tumors of the thoracic inlet. Nine were primary carcinomas of the lung, three bronchial rest carcinomas, two primary thyroid carcinomas, one a primary mesothelioma of the pleura, one primary carcinoma of the larynx and one case of Hodgkins disease. Harken and Morris[12] reviewed the so-called "Tumor of Pancoast" and presented cases of the typical clinical syndrome which they classify as Hare's Syndrome. These authors in addition present three cases which in their opinion definitely "conform to an epithelial neoplasm distinguished from all other tumors common to this region—(1) by its lack of origin from any known adjacent tissue or from metastatic foci and (2) by a histological picture suggestive of an embryonal source." These latter cases they consider can be identified as "Superior Pulmonary Sulcus Tumors" as suggested by Pancoast in 1932.

These authors, Harken and Morris, state that "the symptom complex redescribed by Pancoast and known as the Pancoast Syndrome is decidedly not a specific manifestation of the Superior Pulmonary Sulcus Tumor but may be induced by various types of neoplasm as well as other pathological conditions in proximity to the pulmonary apex."

Many other authors have reported the previously described train of clinical events incriminating various types of lesions arising or finally residing in the vicinity of the pulmonary apex, e. g., primary tumors of the lung, largely bronchogenic carcinomas; tumors arising from tissues adjacent to the pulmonary apex from pleura periosteum, bone and mediastinum; miscellaneous conditions such as apical tuberculosis, aneurysms and trauma; and finally, metastatic tumors from various distant primary foci.

*Summary:* A case of an apical lung tumor is presented, an undifferentiated carcinoma of the upper lobe of the right lung, which showed the clinical features of the so-called "Superior Pulmonary Sulcus Tumor of Pancoast." The clinical symptom complex of apical pulmonary tumor, shoulder and arm pain, rib and vertebral destruction and Horner's syndrome, is discussed with mention of the fact that the symptom complex is due to invasion from a lesion in a certain region, namely, the pulmonary apex regardless of the microscopic histology of the lesion.

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# A REPORT OF A CASE OF BRONCHOGENIC CARCINOMA OF THE LUNG WITH PREDOMINANTLY INTESTINAL SYMPTOMS*

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Because complications occasionally divert ones attention until a terminal event centers thought on the primary pathological organ, the following case report is considered interesting and instructive.

Patient W. A. M., a 72-year-old white male was admitted to this hospital June 13, 1948. His chief complaint was rather severe abdominal pain for approximately two weeks prior to admission. The patient stated that following World War I he has suffered from chronic bronchitis and that in 1920 he carried the diganosis of tuberculosis. The patient further stated that for the past 28 years he had noted a productive morning cough, raising mucopurulent sputum. The patient had not noticed any hemoptosis, night sweats or loss of weight. During the 2 weeks prior to admission the patient had had severe abdominal pain, that was sharp and stabbing in character and not related to the intake of food nor was it relieved by antiacids. The patient also stated that he had been constipated recently and had not moved his bowels for approximately three days. His family history was irrelevant. There was no history of pulmonary tuberculosis or of any chronic illness.

He was a textile worker. His appendix was removed in 1922. His right wrist was fractured in 1943. He lost the distal portion of his right index finger in 1924. His system review was negative except for a complaint of generalized weakness. He did not use alcohol or tobacco excessively. He used no drugs. Physical examination on admission revealed a well developed, apparently well nourished white male with no orthopnea, dyspnea or cyanosis. The patient was ambulatory. The lungs showed normal resonance and breath sounds throughout. The diaphragm moved normally bilaterally. The heart was normal. The abdomen was not distended or tender. No masses or organs were palpable. There was a hallux valgus and pes planus bilaterally.

Laboratory data on admission was as follows: — Urinalysis normal; Serology negative; Fasting blood sugar 166; BUN 18; RBC 4.73 million; WBC 14,600; Hemoglobin 12.5; Differential normal; Sedimentation rate 83; a glucose tolerance test gave a mild diabetic curve; gastric analysis showed a normal high acid curve. Shortly after admission the patient's urinalysis consistently showed, one plus albumen; blood chlorides 416; Serum acid phosphatase 2.8; Cephalin flocculation negative; Thymol turbidity 5; Coagulation time 5; 8 days after admission his icteric index was 25 and on the following day it rose to 37.5. A level at which it persisted. The patient's RBC and hemoglobin gradually diminished until they were 4.02 million and 10.5 grams respectively shortly before death. His admission chest X-ray showed slight prominence of the lung roots with no appreciable change from the chest film 6 months before. Cholecystograms were normal. The skull was negative. At the distal end of the shaft of the right femur was an area of decreased density with a fine lacework pattern extending from it into the lateral condyle. A second lace-like increase in calcification was present in the proximal end of the right tibia. These were thought to be areas of aseptic necrosis.

During the patient's stay in the hospital his symptomatology from a point of emphasis changed. At first his low back pain was the predominant symptom. Later distress in his abdomen became more

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not neeessarily reflect the opinion or policy of the Veterans Administration.

pronounced as his back symptoms lessened. During this time his abdomen remained flat and soft.

A scout film of the abdomen taken on June 21 was negative.

On June 22, nine days after admission, the abdominal pain grew more severe and the abdomen became hard but not distended. Mild sedatives gave partial relief. June 26, four days later, the abdominal pain was increasingly severe. When the voluntary rigidity was relaxed, the abdomen was soft, the liver edge was palpable but not tender. Rectal examination was very painful and added no additional information.

During a barium enema examination made 6/28/48, barium failed to pass beyond the descending colon and sigmoid colon junction. The column of barium tapered gradually at its proximal end. It became a fine trickle of barium and then disappeared. Proximal to the stoppage the colon was markedly dilated. This involved all the proximal large bowel even into a few loops of ileum. The impression was an obstructive lesion of the descending and sigmoid colon of undetermined origin.

July 7, 24 days after admission, the surgical consultant agreed with the medical staff that there was, "a partial obstruction at the junction of the descending and sigmoid colon." The patient gradually continued to lose ground. His abdomen was slightly distended and morphine was necessary to control the pain in his "stomach" and especially, in his back. Wangensteen stomach suction gave no relief.

July 17th, a cecostomy was performed with only temporary relief. Again he began to slip down hill.

July 20th, three days post operative, he began having some respiratory distress. On physical examination the lower right lung was flat and non-air containing. His temperature was not elevated. The patient did not complain of thoracic pain. The diagnosis of probably atelectasis, right base was confirmed the following day by X-ray. The report on the bedside AP X-ray of the chest was as follows: "The right lung is less air containing than the left. A triangular paracardiac shadow of moderate density lies at the right base. The trachea and mediastinal structures are retracted to the right. The right costophrenic angle is obscured. Impression: Atelectasis right lower lobe." Abdominal pain and distention continue. Rolling the patient from side to side seemed to have no beneficial effect. Bronchoscopy with suction was considered but decided against because of the patient's very bad condition.

July 28th, signs of a massive atelectasis appeared. Dullness of entire right lung and no respiratory movement on the right was present. The left border of the heart did not extend to the left of the sternum. The patient was in extremis with marked embarrassment of both respiratory and circulatory systems. A



Fig. 1. Barium Enema 6-28-48

The column of barium stops at the descending colon and sigmoid colon junction. Note the barium and gas shadow tapers to the vanishing point. This favors a non-malignant as against a malignant lesion.



Fig. 2. Barium Enema 6-30-49

Marked dilatation of the colon proximal to the lesion shown in Fig. 1.

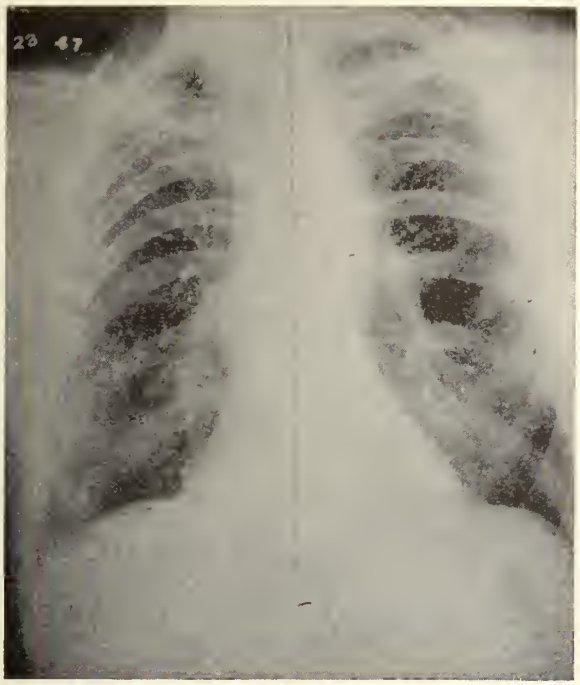


Fig. 3. Chest 12-23-47
The heart and lungs are normal.

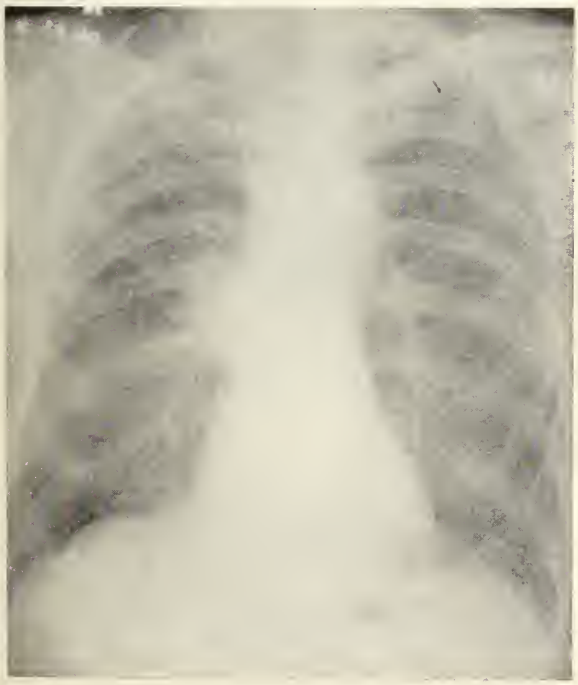


Fig. 4. Chest 6-15-48
The heart and lungs were reported normal but in retrospect we believe the right hilar shadow is more extensive and denser then normal and that there should have been further X-ray studies at this time.

portable X-ray confirmed the clinical impression. The abdominal signs and symptoms of pain and distention became increasingly more severe. Morphine alone controlled the former; cleaning and irrigations through the colostomy opening gave only slight temporary relief.

The patient died August 1, 1948.

### Post Mortem Examination

The post mortem examination was a great surprise. In the first place after a careful, meticulous examination of the intestinal tract except for the colostomy showed "no evidence of any pathological lesion, obstructive or otherwise." On the other hand, "The right lung feels markedly indurated in the region of the upper lobe where firm fixation to the mediastinum is encountered. Upon attempting to dissect the lung free from the mediastinum, an extremely firm, white tumor mass was encountered apparently arising from the main stem bronchus of the right upper lobe, infiltrating into the surrounding pulmonary parenchyma, invading the mediastinal nodes in the region of the carina and invading the mediastinum by direct extension as well. The remaining portion of the right upper lobe was rubbery in consistency and airless." The remainder of the lungs was normal.

The liver weighed 3100 grams and "was riddled throughout with whitish nodules of varying size and consistency, some being not much bigger than a pinhead and others measuring 5 x 7 cm. and having necrotic centers."

Microscopically: "The lungs show replacement by solid masses of small deeply chromatic cells composed almost entirely of nucleus. The nucleus is spherical to oval in shape and fairly compact. The cells grow in solid masses with no intervening stroma. They are reasonably characteristic of the type of cell seen in so-called small type cell of bronchogenic carcinoma." The liver masses showed, "tumor cells identical to those seen in the lung.'

### Comment

The interesting feature of this case is that his symptoms pointed to gastro-intestinal pathology which was apparently confirmed by examinations. This was so much the case that his minor thoracic symptoms were discounted, especially since he had two negative chest X-rays.

In retrospect we find that the patient gives a history of having been gassed in 1918 and of having had a chronic cough and chronic bronchitis since World War I. In 1920, he was thought to be tuberculous. Also, in retrospect on reviewing the chest roentgenograms of 6/15/48, I believe the right hilar shadow is both more extensive and dense than is

normal and that if further X-ray examinations with right and left anterior and right lateral projection had been obtained, the correct diagnosis would have been made.

The second unusual feature of this case was the absence of intestinal pathology at autopsy. That there was an obstruction in the lower large bowel is undoubted. That the obstruction was due to spasm and not to organic disease is equally evident. The most satisfactory explanation is a reflex spasm secondary to irritating pathology elsewhere in the body. The irritation may have been from the unsuspected bronchogenic carcinoma of the lung. The tapering proximal end of the column of barium was interpreted as more consistent with a non-malignant lesion. But taking the individual's age and clinical course in consideration we did not think malignancy could be ruled out.

The purpose of this paper is to again sound a warning which is so often heard but so quickly and easily forgotten. Always keep an open mind and do not focus attention on any group of symptoms. If a finding does not fit into the picture, determine why rather than ignore the finding.

### Conclusion

1. Case of unsuspected carcinoma of the lung with predominating intestinal symptoms is reported.

2. A warning to constantly keep an open mind is again voiced.

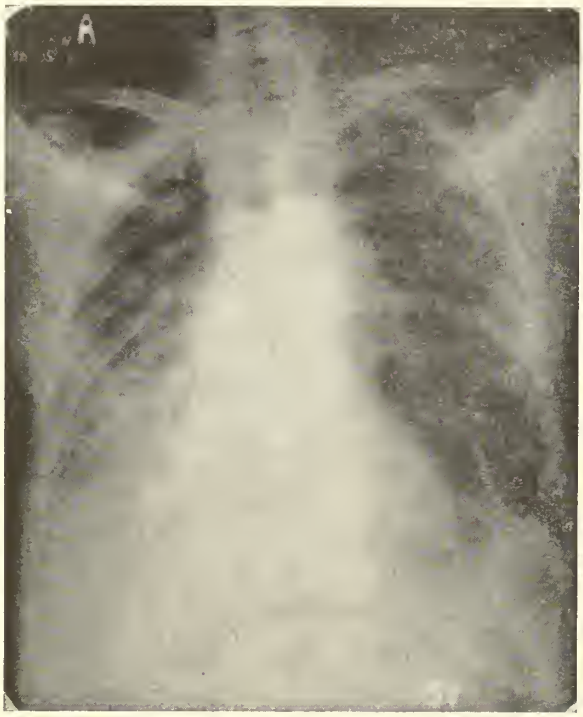


Fig. 5. Chest 7-20-48

Bedside portable X-ray. Beginning right lower lobe atelectasis. Note the trachea and mediastinal structures are retracted to the right.

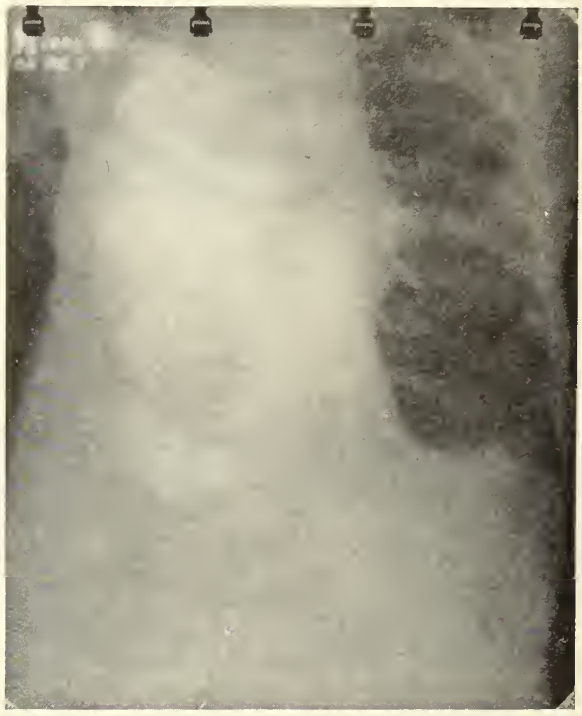


Fig. 6. Chest 7-28-48

Bedside portable X-ray. Massive atelectasis right lung. Note the marked retraction of the heart to the right.

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Health education and sanatorium treatment are our two greatest weapons in fighting tuberculosis. We must remember that each patient with active tuberculosis presents a medical problem, a social and welfare problem, an economic problem and, let us never forget, a public health problem. — R. D. Thompson, M. D., *Bull. Nat. Tuber. A.*, Jan., 1950.

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The health officer responsible for tuberculosis control in his area should, as an integral part of his work, develop an understanding and working relationship with the social agencies in his community. Such a relationship would certainly benefit both agencies. The social agency will gain an insight into the specialized medical and public health problems associated with tuberculosis control and the health agency will have an opportunity to see the positive contributions which social workers and social agencies can make toward the effective management of tuberculosis patients. — Robt. J. Anderson, Chief, Div. Tuberc., *Pub. Health Rep.*, Dec. 2, 1949.

# ESOPHAGEAL DIVERTICULA; A BRIEF REVIEW*

## Two Cases Illustrating the Standard Methods of Treatment

William K. Barton, M. D.**

Esophageal diverticula are usually classified into traction diverticula and pulsion diverticula. The traction diverticulum will be discussed very briefly and the pulsion diverticulum, which occurs most frequently and which is amenable to surgical treatment, will be discussed at greater length. Two cases of pulsion diverticula will be presented to illustrate the two common methods of surgical treatment.

*Traction Diverticula* are practically always located on the anterior or lateral wall of the esophagus at about the level of the bifurcation of the trachea, where the esophageal wall makes contact with the bronchial lymph nodes. An inflammatory process in these lymph nodes, most often tuberculosis, involves the wall of the esophagus and creates the diverticulum by secondary connective tissue contracture. These diverticula are true diverticula, since they are composed of all layers of the esophagus, and tend to be cone shaped because of the unilateral traction. Traction diverticula have also been described associated with caries of the spine, mediastinitis, pleurisy, empyema, pericarditis and cancer.[1] In the lower thoracic esophagus, diverticula are rather rare and may be of the pulsion or traction type.

*Pulsion Diverticula* are most often located at the junction of the pharynx and esophagus and are false diverticula since the mucous membrane herniates through the muscle fibers of the pharyngo-esophageal junction posteriorly between the lower fibers of the inferior constrictor muscle of the pharynx and the cricopharyngeus muscle. The pulsion diverticulum is a saccular dilatation and may vary considerably in size. As the sac enlarges, expansion takes place laterally and downward between the prevertebral and pretrachial layers of the cervical fascia. The weight of the contents of the sac causes it to sag down to the most dependant position angulating the opening into the esophagus and allowing food to pass directly into the diverticulum rather than the esophageal opening.[2]

As regards etiology of pulsion diverticula, Lahey[2] feels that a weak place exists at the pharyngo-esophageal junction posteriorly due to the fanning out of the muscle fibers, and that recurring pressure from neuromuscular incoördination during swallowing may produce a bulge at this weak place. The bulge is the first stage in the development of a diverticulum. King,[3] however, is at slight variance with the theories of muscular deficiency or congenital weakness at the posterior pharyngo-esophageal junction, and instead, believes that this weakness is an acquired one. He feels that the cricoid cartilage may press against the fixed ridge of the intervertebral joint and so thin out the muscle fibers of the intervening inferior constrictor muscle.

Pharyngo-esophageal diverticula occurred chiefly in the older age group and occur three times as frequently in men as in women. In Harrington's[4] Series of one hundred and forty cases, the average age was fifty-seven years and the average duration of symptoms was five years before operation. The symptoms once begun are usually slowly progressive and depend upon the size of the sac and its ability to empty itself. Those diverticula with a large opening and which empty readily, produce less symptoms than a smaller sac that empties poorly. Lahey[2] has classified size of the diverticula and symptoms into three stages. In Stage I, there is a bulge in the mucous membrane which causes an occasional cough or hawking to dislodge a piece of solid or dry food caught in the sac. In Stage II, the sac is capable of retaining varying amounts of food, mucous or air, and the opening of the sac is to the side producing little or no distortion of the esophageal lumen. At this stage, there may be sudden and unpredictable fits of coughing especially when at night change of position expels the contents of the sac into the pharynx. Gurgling noises may be heard when pressure is exerted on the sac and at times may become quite embarrassing to the patient. The Stage III symptoms are associated with a large sac and varying degrees of esophageal obstruction. The large sac now occupies a more direct and dependant position allowing food to pass into the diverticulum instead of the esophagus. When the diverticulum fills, food may overflow into the esophagus producing regurgitation. Often times the patient must spend several hours at a meal using extreme caution while eating to get sufficient nourishment. Associated with this overflow, there may also be severe coughing and choking spells and the danger of aspiration of food into the bronchial tree.

Other symptoms may be a Horner's syndrome from pressure on the cervical sympathetics and occa-

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** Surgical Service, Veterans Hospital, Togus, Maine.

sionally hoarseness from pressure on the recurrent laryngeal nerve.

*Diagnosis* is usually made from the history. Physical examination may or may not reveal fullness or increase in the size of the neck. With well-developed sacs, a gurgling or bubbling sound can generally be produced by pressing the hand over the side of the neck, or more often heard by placing a stethoscope over the side of the neck and having the patient drink some water. X-ray and fluoroscopic visualization of the esophagus prove the diagnosis.

*Treatment* of pulsion diverticulum is surgical resection by either the one-stage or two-stage procedures. For the purpose of illustrating and discussing both methods of surgical treatment, two cases of pharyngo-esophageal diverticula recently operated on at this hospital will be presented. Both cases were treated pre-operatively by adequate protein, caloric, and vitamin intake, to have the patient in the best possible condition for surgery. A stomach tube may often times be necessary for adequate pre-operative feeding where marked malnutrition or dysphasia exists, but was not necessary in these two cases. Use of a stomach tube during surgery and post-operatively is a debatable point and felt by Sweet[5] that the irritating effect of the tube might interfere with the healing of the suture line. However, in case two, a tube was used and found helpful as a guide during surgery and for feeding purposes post-operatively. Warm bicarbate irrigations of the sac were carried out for a number of days to minimize inflammation and the patients were placed on liquids approximately 24 hours prior to surgery to minimize the contents retained in the sac. During the preoperative period, examination of the vocal cords was carried out. This is especially important when the symptom of hoarseness exist.

### Case No. 1

### (Lahey Two-stage Resection)

A 54-year-old white male admitted to the Medical Service with the chief complaint of "swelling of the throat" of seven months' duration. The patient stated the swelling in his throat was more or less constant, but aggravated by attacks of frequent colds which lasted two to three days and which produced hoarseness, coughing, rhinitis and fever. Patient had also noticed gradual increasing difficulty in swallowing both liquids and solids, especially solid meats. The patient noted that if he swallowed his food too rapidly there was a sudden regurgitation of food "right through my mouth" and he also noted that if his food "got down past a certain point everything was fine." Other complaints on admission were easy fatigability, slight weight loss, nervousness and increased tolerance to cold weather.

Physical examination revealed a well-developed, apparently well-nourished white male in no acute distress. On examination of the neck, the thyroid gland appeared to be moderately and profusely enlarged. There was no bruit or thrill. The left pupil was slightly larger than the right one, both reacted to light and accommodation, and there was no exophthalmos. The remainder of the physical examination was not remarkable. Diagnosis on admission was hyperthyroidism.

On the Medical Service, a thorough workup revealed the patient to have a large pulsion diverticulum of the esophagus (Fig. 1) and he was transferred to the Surgical Service for resection of the diverticulum. Following numerous aspirations and irrigations to the sac over a period of days, a first-stage resection of the diverticulum was undertaken under cyclopropaine anesthesia. A vertical incision along the anterior border of the left sternocleidomastoid muscle was used, the carotid sheeth exposed and retracted laterally, the thyroid gland retracted medially, at which point the diverticulum became apparent. The sac was completely freed and was surrounded by a moderate amount of inflammatory reaction. Its wall appeared fairly thick. The sac itself measured approximately 8 cms. in length and about 4 cms. at its greatest diameter and from the neck of the sac outward, frayed-out muscle fibers could be discerned. The neck of the sac was fairly wide in a vertical direction and measured approximately 3 cms. The fundus of the sac was then attached to the lateral edge of the sternothyroid muscles by two interrupted silk sutures, which were left long for subsequent identification. This procedure completely changed the direction of the sac so that it emptied downward into the esophagus. A small amount of dry gauze packing was placed in the defect in the superior mediastinum and carried upward along the esophagus to the neck of the sac. The end of the packing was brought out through the lower part of the incision. The wound was closed with interrupted silk sutures.

Patient's post-operative course was complicated by moderate pyrexia and a cough which was productive of large amounts of watery sputum. The packing was removed from the wound on the 5th post-operative day and approximately 30 c.c. of old blood was evacuated from the wound. The patient appeared to be improving clinically but shortly developed a marked mental depression from which he recovered rather rapidly but delayed the second stage of the procedure beyond the optional interval. Twelve days after the first procedure, the second-stage procedure was carried out under G.O.E. anesthesia. The skin incision was well healed but below the skin level, the tissues were quite easily separated. A moderate amount of old blood clots were found in the more dependant part of the wound and the diverticulum

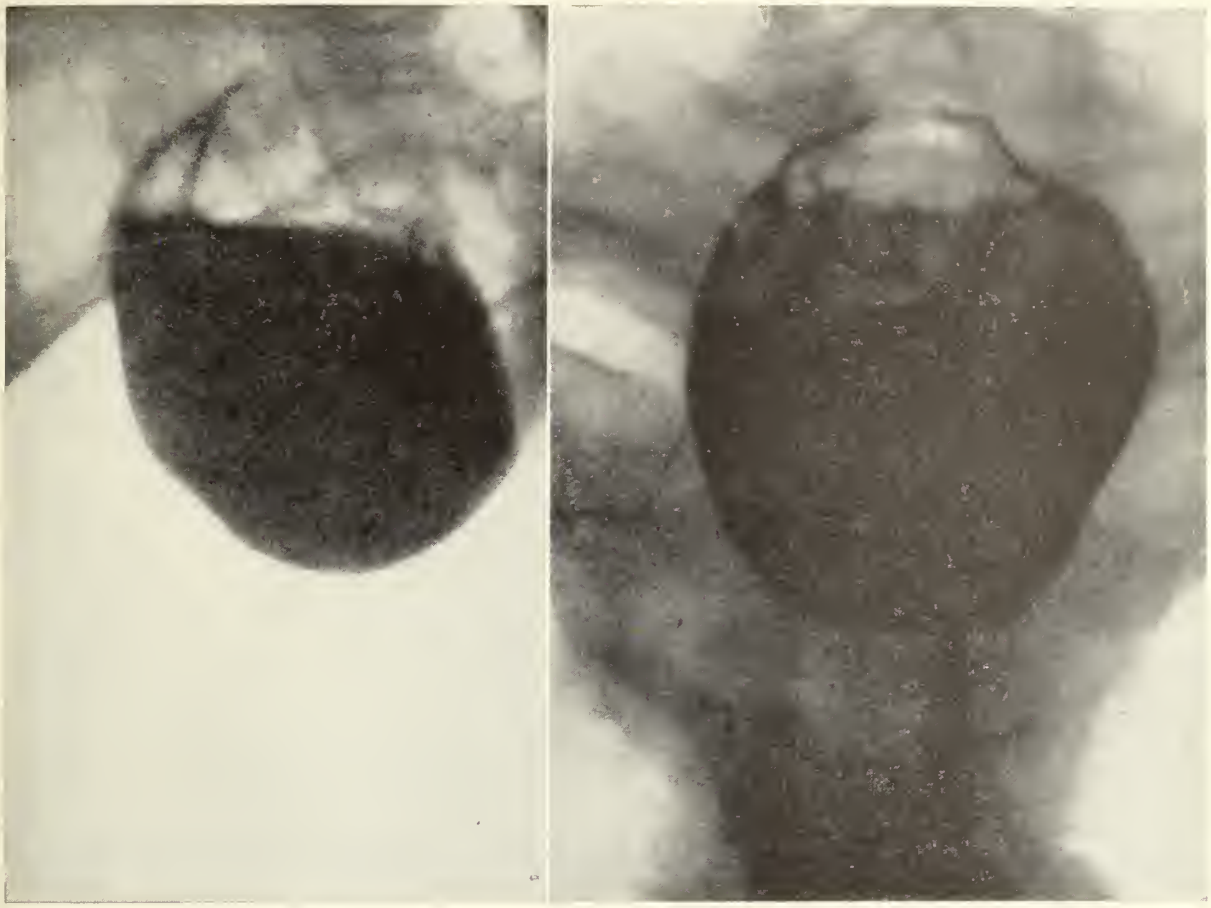


Figure 1 — Showing the large pulsion diverticulum in case No. 1, the opening being at the 1st and 2nd dorsal vertebra and extending to the 5th dorsal vertebra. On fluroscopy, the barium flowed into the sac and then overflowed into the remainder of the esophagus.

itself was firmly adherent to the prethyroid muscles. It had shrunken to about half the size encountered on the previous operation. The esophagus which had been mobile at the previous operation was found to be quite firmly bound down anteriorly and posteriorly making complete exposure of the neck of the sac rather difficult. Using stay sutures for traction, the neck of the sac was divided with a scalpal with the application of silk sutures at close intervals through all layers during the division. The suture line could not be inverted and was covered by suturing a layer of muscle tissue over it. A Penrose drain was used and the wound closed with silk in the deep layers and Michel clips on the skin.

Post-operatively, the general condition of the patient was excellent although a fistula was noted three days later which remained open approximately two weeks. Patient returned to this hospital six months following surgery at which time the scar on his neck was well healed. Comparison X-rays of the esophagus revealed a good operative result.

### Case No. 2
### (Sweet One-stage Resection)

A 57-year-old white male admitted to the Medical Service with the chief complaint of nausea, vomiting, and slight diarrhea, all of approximately three weeks' duration. On questioning, he gave a history of indigestion in the past and of having a lump in his throat for the past three years associated with difficulty in swallowing and the necessity for taking water with dry food. This patient also gave a history of a dry cough which was worse at night, especially on lying down. Under careful questioning, no history of tarry stools was obtained and no history of food intolerance other than his inability to tolerate a "regular diet."

Shortly after patient's admission to the hospital, a gastric analysis was performed which failed to show any free hydrochloric acid. Considerable difficulty was encountered in passing the tube. After the fasting specimen was removed through the tube, very little additional gastric content could be aspirated.

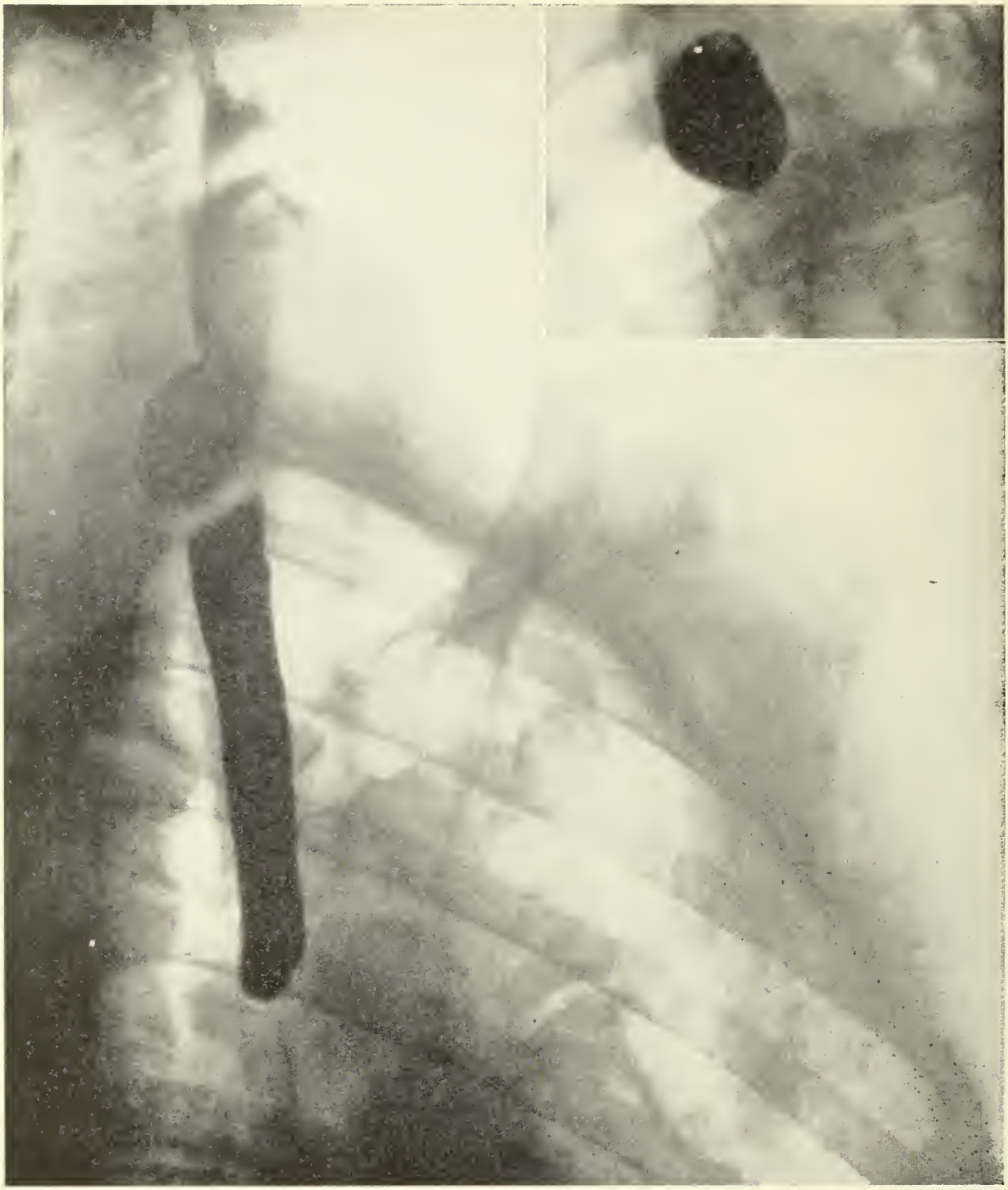


Figure 2 — Showing the pulsion diverticulum in case No. 2, the opening being at about the 7th cervical vertebra and the sac measuring approximately 4 x 2 cm. in size. Insert shows retained barium in the diverticulum after swallowing.

Upon removal of the tube, the end was found to be knotted and it was felt that this knot was a factor in the failure to obtain free hydrochloric acid. Fluoroscopic examination and upper Gastro-intestinal Series were performed revealing a pharyngo-esophageal diverticulum measuring approximately 1½ inches in diameter (Fig. 2) and a duodenal ulcer of questionable activity.

Patient refused to have a gastric analysis repeated and did not desire surgery to his diverticulum of the esophagus. He was placed on a strict gastric regime and his complaints referable to his gastro-intestinal

tract disappeared shortly afterwards. However, he still complained of difficulty in swallowing and of having a lump in his throat. Patient was discharged from the hospital.

Three months later, the patient was re-admitted to the Surgical Service, at which time he voluntarily entered the hospital for operation. Complaints on this admission were dyspepsia, dysphasia, anorexia, loss of weight and emesis. His syndrome was fairly typical: regurgitation of ingested food, inability to swallow solid foods and sudden awakening at night and regurgitation of thick clear liquids. Physical examination at this time elicited high-pitched splashing sounds on auscultation on the left side of the neck when the patient swallowed water.

Following numerous aspirations and irrigations of the diverticulum over a period of days, patient was taken to the operating room where under G.O.E. anesthesia, a one-stage resection of the diverticulum was performed using the technique described by Dr. Sweet,[5] except that a gastric tube was passed preoperatively. Incision and exposure of the diverticulum was essentially the same as in the preceding case. The outer layers of the diverticulum were incised a short distance on the neck of the sac exposing the mucosa. Two stay sutures were then placed in the muscularis coat at each end and traction applied to the sutures. The mucosa was then partially incised and fine interrupted silk sutures closely applied to the cut edges. This process was continued until the diverticulum was excised and the mucosa sutured. The edges of the muscularis layer were then sutured over the mucosal suture line. A small Penrose drain was then placed in the dependant portion of the wound and wound closed with a layer of interrupted sutures in the platysma muscle and in the skin.

Patient was placed on penicillin and sulfadiazine post-operatively and his recovery was uncomplicated. The stomach tube was left in during the entire operation and was used post-operatively for feeding purposes. The drain was removed within 24 hours and the wound healed per primum. Follow-up films of the esophagus one month after surgery showed no evidence of constriction and revealed a good operative result. Patient was relieved of symptoms and regurgitation and pharyngeal discomfort.

*Discussion:* The two-stage operation in Case No. 1 is considered to be the safer procedure, and Lahey's[2] statistics for the two-stage procedure are most impressive. The danger of mediastinitis is prevented since the sac is not opened during the first stage and the prevertebral and pretracheal fascial planes leading directly into the superior mediastinum are sealed by reaction to the gauze packing. If a fistula develops during the second stage procedure, mediastinitis or fascial plane infection will be prevented.

An objection to the two-stage procedure is the necessity for a second operation with its additional dangers of surgery and the necessity for somewhat longer hospitalization. The tissues at the second-stage operation may not be as surgically desirable as illustrated in Case No. 1. The second stage was prolonged beyond the optimal interval and the esophagus was found to be quite firmly bound down where at the first-stage operation, it had been quite mobile. Complications might prolong the second-stage operation and may make for additional operative difficulties. Also during the first stage, there is the danger of implanting the diverticulum so high that angulation or traction on the esophagus will result in an obstruction of the esophagus.

There are objections to the one-stage procedures and these are the developments of a fistulous tract, greater danger of mediastinitis, and perhaps a greater tendency towards secondary stricture than in the two-stage procedure. This in a large part can be prevented by careful suturing of the neck of the sac and the liberal use of antibiotics.

*Summary:* A brief review of esophageal diverticula has been presented with particular reference to pulsion diverticula at the pharyngo-esophageal junction. Two cases of pulsion diverticula were presented illustrating the one-stage and two-stage methods of surgical treatment.

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# SPONTANEOUS GINGIVAL BLEEDING IN APLASTIC ANEMIA*

David Berliner, D. D. S.

The Dental Staff of a Veterans Administration Hospital is responsible not only for the diagnosis and treatment of dental disease but, as an integrated component of the hospital team, is frequently consulted in the diagnosis and treatment of disease not directly of dental origin. The following case report is cited as an interesting example of how a dental staff may serve in such capacity:

The patient, a 54-year-old white male, was admitted to the Veterans Administration Hospital on October 20, 1948. His chief complaints were tiredness, weakness and bleeding from the mouth.

The patient stated that up to about June, 1948, he felt perfectly well. At about that time, he began to feel weak and tired and his gums bled easily. In July, he was admitted to another hospital for study. A blood count then showed 1,280,000 red blood cells, 2700 white blood cells and 34 per cent hemoglobin. A differential count showed 1 eosinophil, 2 stabs, 29 segs and 68 lymphocytes. There was a considerable amount of macrocytosis, polychromia, and poikilocytosis. The platelet count was 16,000. Sternal biopsies showed a hypocellular element with numerous large abnormal lymphocytes. A diagnosis of aplastic anemia was made. The patient had multiple transfusions and a regime of liver, iron, folic acid, vitamins K and C without improvement. During this time, bleeding from the mouth continued without cessation, interfering with the patient's sleep. He was transferred to the Veterans Administration Hospital for continued treatment.

On admission, a blood count showed that red blood cells had increased to 1,740,000 and platelets to 17,400. White blood cells had decreased to 1,850 of which 92% were lymphocytes and 8% neutrophils. Coagulation time was 5 minutes, bleeding time over 8 minutes.

Frequent transfusions were continued. Crude liver extract, vitamin K, lextron, and folvite were given over a period but discontinued after a trial proved them to be ineffective. The transfusions did not have any effect on the bleeding from the mouth. On November 2nd, the Dental Service was requested to examine the patient and attempt to bring the bleeding under control.

The patient was brought to the Dental Clinic in a wheelchair. He was obese, pale and tired-looking. He appeared mentally depressed. He immediately began to expectorate mouthfuls of semi-clotted blood. The patient stated he had not been able to sleep well for weeks because of the blood that collected in his mouth. Various types of local treatments had been tried but failed to control the bleeding.

Oral examination revealed a number of missing teeth and several carious teeth. The gingiva and oral mucosa was not acutely inflamed. At the interproximal areas of the gingiva between the lower anterior teeth were numerous spots from which blood was oozing.

Any attempt to control the bleeding by local treatment appeared hopeless. But, it was thought, might not the bleeding stop if the bleeding spots of the tissue were coagulated? More or less experimentally, the actual cautery was lightly applied to one spot. Although a local anesthetic was not used, the patient did not experience any pain. Bleeding stopped. The cautery was then applied to all bleeding spots with very effective results. Apparently, the bleeding was under complete control. When the patient was seen the next day, several new bleeding spots were found and cauterized. There was then a complete cessation of oral bleeding for about six weeks. The cauterized tissue healed well without sloughing.

The following day, the patient was cheerful and optimistic. He said that he slept well for the first time in weeks. By November 10th, the patient was ambulatory. He was up and about the ward and was observed in the hospital lobby several times making telephone calls.

A blood count on November 8th showed 1,890,000 red blood cells. By November 15th, the red blood cell count had increased to 2,260,000. In periodic blood counts thereafter, red blood cells averaged slightly over 2,000,000. There was a slight increase in hemoglobin.

On December 22nd, a weakness of the musculature of face and extremities on the right side and a slurring of speech was noted. By the 30th of December, the patient was completely aphasic and a right hemiplegia was present. He made some temporary improvement after which his course was progressively downhill. On January 10, 1949, he became comatose and expired.

In bringing the oral bleeding under control, the course of the patient's disease was not greatly altered but his last weeks were made more comfortable. Control of the bleeding was, perhaps, even a factor in prolonging the patient's life for a short period.

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

# NURSING SERVICE AT VETERANS ADMINISTRATION CENTER, TOGUS, MAINE*

ALICE R. TEAGUE, R. N., Chief, Nursing Service

This hospital, which is the only veterans' hospital in the State of Maine, is made up of two large sections — mainly, neuropsychiatric and general medical and surgical with its specialties; and although one is dependent upon the other, the physical layout is such that it has to be treated as two separate hospitals. This, of course, presents many problems in staffing.

The neuropsychiatric section is the larger section and has a 564-bed capacity. The wards are classified as admission, acute, continued treatment, observation, geriatrics, and an infirmary with a small isolation unit. The smallest ward has a capacity of 37, and the largest ward has a capacity of 113.

The general medical and surgical section has a bed capacity of 305. There are nine wards — medical, surgical, and tuberculosis — ranging in capacity from 23 to 42 beds.

The two large sections are joined by corridors which facilitate transportation of patients from one section to another since the operating room, X-ray department, and laboratory department service both sections.

The Nursing Service is made up of nurses, hospital aides, maids, janitors, and barbers. Unlike many civilian hospitals which have a separate housekeeping department, the cleanliness of the hospital and the doctors' and nurses' quarters is the responsibility of the Chief of Nursing Service. This has its advantages and disadvantages. The housekeeping in the living quarters is done by maids, but the housekeeping in the hospital is done by the janitors and the hospital aides. The cleanliness of the hospital has resulted in many compliments from visitors and inspecting groups. Although housekeeping must be secondary in importance to patient care, it is a contributing factor in good technique and morale.

The nurses are recruited at local level and their eligibility is determined by a Nurse Professional Standards Board. The nurses employed here represent eleven states though over 50 per cent are from Maine and 25 percent are from Massachusetts. Graduates of thirty schools of nursing are represented.

The hospital aides are carefully selected. An interested, well-trained, sub-professional group has been developed by classroom teaching and close ward supervision.

*Educational Program*

The educational program of the Nursing Service at Togus consists of orientation, in-service courses for nurses and hospital aides, and university extension courses for nurses.

As a part of the orientation program, each nurse is met on arrival and personally conducted to the Personnel Division by the Assistant Chief, Nursing Education. After all necessary forms have been filled out, the Assistant Chief, Nursing Education, takes the nurse on a tour of the hospital at which time the nurse is introduced to other nurses, doctors, and department heads. After the tour, the organization of the Veterans Administration, personnel policies, and other pertinent subjects are explained. A set of papers containing a map of the station, floor plans of the hospitals, names and positions of key people, and VA regulations concerning administration of medications is given the nurse for her further perusal. The nurse is oriented to her ward, meeting personnel and patients, and getting acquainted with the location of service and supply rooms and the general routine of the ward. This part of the program is conducted by the supervisor and head nurse.

The in-service course for nurses consists of doctors' lectures and demonstrations, films, and discussion groups. Head nurses' meetings and general staff meetings are held bi-weekly. A meeting of supervisors; Assistant Chief, Nursing Service; and Assistant Chief, Nursing Education is held weekly with the Chief, Nursing Service, to discuss problems and new policies. Through these meetings of all nursing levels, an "up and down the line" dissemination of information is given and received.

The medical, surgical, and neuropsychiatric nursing supervisors coördinate the activities of each service. Head nurse and staff nurse meetings are held by the supervisors to discuss plans for improvement of each service. Supervision of nurses and follow-up training of the hospital aides is one of the important functions of each supervisor.

Promotions of nurses are determined by work performance, professional background, and advanced nursing education. Arrangements are made with various universities, mainly the University of Maine, for extension courses in required subjects. Seventy-five per cent of the nurses presently employed have had some college work beyond their schools of nursing. Interest in advanced education is maintained by arranging time off duty and granting leaves of absence to allow nurses to increase their learning in special nursing areas.

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Attendance at meetings of the nursing organizations is urged. Visits to other hospitals and attendance at workshops and institutes are arranged in so far as is possible.

The hospital aides at Togus come to us for the most part untrained. A formal course has been set up and a training ward in each section has been selected. The orientation of the attendants follows very closely that of the nurse, and although they are assigned to the training ward on the day following appointment, a large part of their time for the first few weeks is spent in class. The neuropsychiatric aides are given a 75-hour, on-the-job, for-the-job course. The course includes care of the environment of the patient, personal care of the patient, attitude of the aide toward the mentally ill, and certain other psychiatric information. On completion of the course a formal graduation is held and certificates are presented.

An in-service program for neuropsychiatric nurses and aides has recently been established. These courses are given to assist the nurses and aides in better adjustment to the psychiatric hospital by orienting them to the basic principles and techniques of psychiatric nursing which are essential for security, satisfaction in their work, and for the promotion of harmonious intra- and inter-departmental relationships, and to educate them to current trends.

The hospital aides who are assigned to the general medical and surgical hospital are given a forty-hour, on-the-job, for-the-job course.

The educational department consists of the assistant chief, nursing education, who does the over-all planning of the education and training program and assists in the teaching and supervision of the hospital aide group, and an instructor who carries out the program for teaching the aides.

Two classrooms, equipped with blackboards, tablet arm chairs, and a patient unit in each are available for the teaching program. These classrooms are equipped for showing of training films and slides.

Each ward has a library with nursing texts on materia medica, anatomy, nursing arts, quick reference book, and English and medical dictionaries. In addition, nursing texts on the specialty of each ward are supplied. The medical library with a large selection of new medical and nursing books is open to nurses daily.

*Neuropsychiatric Service*

In line with the motto of the Veterans Administration, "Service second to none for the Veteran," the neuropsychiatric nursing service has endeavored to translate into a workable program the objectives advanced by the modern concept for the care and treatment of the neuropsychiatric patient.

The "Total Push" program which is maintained presents a challenge to the psychiatric nursing personnel. We are living in a changing world; important changes have taken place and we are coming to realize that this psychiatric educational ferment will continue, that it will always be. Our concept of individual differences of all people is slowly changing and will in the future undergo even more radical changes. It is a challenge and one which will not be ignored.

In addition to promising results attained by lobotomy here during the past year, several other changes in treatment technique have greatly speeded the turnover of cases. There have been many departures from routine which are now proving successful at this hospital. The most radical departure was the discontinuance of hydrotherapy. It was done away with over night. Patients who spent the greater part of their time in packs and tubs, along with the personnel who were in attendance, now engage in activities that increase the recovery quota. Such patients are now relaxed by more intensive and extensive gymnasium work, outdoor walks, and general recreation and social activities. They engage in occupational or educational therapies which were practically closed to most of them previously.

This is in line with a general liberalizing of the philosophy on psychiatric treatment and has allowed a new tone of understanding between patients and attending personnel. More time is spent with the patient. Nurses and aides are urged and encouraged to spend more time in social contact with the patients, joining in games and conversation, however simple or one-sided, to encourage the patients to face reality, and in other ways to seek reactions that may indicate avenues to aid the patient's recovery.

It was long since decided that newer practices, such as regarding and treating a mental patient as a normal human being, were more than something to talk about. They are in evidence throughout this hospital. Even in the violent and extreme depression wards men eat with knives and forks again, wear strings in their shoes and have belts for their trousers. There are draperies in the windows, pictures on the walls painted in pastel colors, and the dayrooms have pool, billiards, and ping pong tables. The use of restraints has lessened and soon, we hope, will be discontinued entirely.

There are constant reminders to the patients that they are still members of human society. Proceeding further along this new line of thought, more men in these wards are allowed to don their civilian clothing and attend church, hospital dances, picnics, card parties, and beano games. All attend the movies three times weekly. A melo therapy program encourages talent in all the active wards and allows patient-pro-

duced entertainments. In all of the activities nurses and aides actively participate.

A combination of the new means has made possible the home return of patients including some of the lobotomy subjects, and allowed the hospital to keep ahead of the increasing demand for admissions.

*Surgical Nursing Service*

The surgical nursing service with a total bed capacity of 147 is proud of the ever-increasing care which it has rendered the veteran.

In the past three years we have been able to rearrange the physical plan of the service so that the fifth floor of the hospital is now devoted to operating rooms, central supply, laboratory, and offices of the chief and assistant chief of surgery. The fourth floor is devoted wholly to acute surgical cases. The Orthopedic; GU; Eye, Ear, Nose, and Throat wards are located on the third floor. This plan gives complete unity and greater working facilities.

The nursing personnel has been increased and screened to the point of giving adequate coverage on all tours of duty and nursing care of the high type demanded by Veterans Administration standards.

Major surgical operations include gastric resections, abdominoperineal resections, pneumonectomies, thoracotomies, repair of hiatus hernias, spinal fusions, lobotomies, tractotomies, and hemilaminectomies. In addition to the above-mentioned cases, repair of inguinal hernias, appendectomies, supra-pubic cystostomies, nephrectomies, prostatectomies, various types of orthopedic, eye, ear, nose, and throat cases and many others are of common occurrence.

The below list and the following statistics may prove interesting to demonstrate the progress made and the type of medical and nursing care offered at our hospital.

| | 1944 | 1949 |
|---|---|---|
| Total number of patients admitted to the hospital | 1,327 | 2,972 |
| Blood transfusions given all services | 4 | 1,300 |
| Lab. tests — all services | | 100,000 |
| Fluoroscopic studies | | 1,048 |
| GI tests | | |
| BA enemas | | |
| All services | | |
| X-rays — all services | | 11,000 |
| Surgical operations performed | 197 | 1,000 |
| Orthopedic operations performed | 23 | 271 |
| GU operations performed | 0 | 104 |
| E. E. N. T. operations performed | 28 | 226 |
| Total operations | 248 | 1,641 |
| Gastrectomies | 0 | 25 |
| Lobotomies | 0 | 20 |
| Tractotomies | 0 | 2 |

New equipment has been added gradually in the past two years to facilitate the handling of increased load in surgery and the nursing care of surgical patients. In the operating room, a large carriage autoclave has replaced the two smaller ones, which had become inadequate for the volume of sterilizing necessary. The Hi-Speed Pressure Autoclave and the washer sterilizer have helped in the rapid sterilization of instruments and in safer terminal sterilization of septic cases. A hot air oven, a ten-gallon still, new overhead lights in both operating rooms and a new table in one operating room have added much to the efficiency of our installation.

New and modern equipment on the wards include surgical carriages, utility wagons, maid linen trucks, Bradford frames, portable chart carriers, fracture beds, utility wall stands, overbed tables, medicine card racks, basin and instrument sterilizers, iceless oxygen tents, a cracked ice container, and Monel metal equipment.

In the last three years, the operating room has revised its technique and that advocated by Dr. Carl Walter of Peter Bent Brigham Hospital, Boston, Massachusetts, is being followed. All operating room linen has been dyed blue-grey. Not only have we found this change advantageous from the point of view of eye strain but also it saves laundry loss.

Central Supply, a comparatively new department in this hospital, has developed gradually into a valuable and essential section in the hospital organization. From one small room in 1947, it has grown into a suite of three rooms, namely; receiving, dispensing, and work rooms.

Supplies and equipment necessary for all diagnostic and therapeutic procedures throughout the neuropsychiatric and general medical and surgical hospital, including seventeen wards, clinics, and Out-Patient Department, are centrally located and available for immediate use. Wangensteens, suction machines, deodorizers, inhalators and the like are let out and returned for check-up before use by another ward.

Individual instrument sets sterilized by autoclaving are available for each dressing, thereby eliminating the occurrence of cross infection and wound contamination. Sponges, pads, packings, and all other types of dressings essential for routine and special care of surgical patients are wrapped, sterilized, and distributed upon request. Disposable intravenous sets are used in this hospital. Volunteer workers from various Maine organizations are particularly helpful and aid greatly in making dressings, wrapping supplies for sterilization and in delivering supplies to the ward. These volunteers are also very helpful on the wards, giving out nourishments, feeding patients, folding linen, doing errands, and delivering mail.

The Orthopedic Service occupies a prominent

place in our hospital, partially due to the nature of wounds and accidents sustained in war service. Removal of discs and spinal fusions are common. Osteomyelitis following gunshot and shrapnel wounds sustained in both world wars is still encountered and frequently requires surgical intervention.

Our surgical nurses are familiar with the over-all program and are prepared to serve well wherever needed. And so can it be said that the integration and coördination of all these services insure our surgical patients of the high calibre nursing care which they have cause to know and appreciate.

*Medical Nursing Service*

The Medical Nursing Service is a busy service consisting of five wards with a total bed capacity of 159. The wards are classified, and as far as possible the patients are assigned only to these particular wards.

The gastro-intestinal ward has an adjoining treatment room where the nurses assist the doctors with gastric analyses, gastroscopies, proctoscopies, and sigmoidoscopies.

A small dermatological unit is maintained and the nurses have been instructed and trained in treatment procedures recommended by the area consultant.

A nine-bed isolation unit for such cases as meningitis, poliomyelitis, mumps, scarlet fever and such is maintained. Here multiple gown technique is carried out.

The tuberculosis unit is a thirty-three bed ward. We are particularly proud of this ward. Aseptic technique has been developed by two enthusiastic charge nurses. Formerly this was a very dreary, depressing ward where little or no technique was used. Today it is one of our most cheerful and attractive wards. A gown room has been set up with handwashing facilities, and a treatment room for administration of pneumothorax and pneumoperitoneum. Strict technique is observed and personal protection of personnel and visitors is maintained by use of cap, mask, and gown.

The linen on this ward is dyed a pale yellow which is cheerful and provides distinction in the laundry. The sunroom has gay draperies and bookcases filled with new books. Here comfortable chairs are furnished for the patients as they are allowed privileges.

The nurses participate in patient and family instruction. Four nurses who have been assigned to this ward for two years form a nucleus and they indoctrinate and teach newly assigned nurses and aides under the supervision of a competent, well-trained charge nurse.

Films and literature from the National Tuberculosis Association are provided to teach patients and their families.

Entertainment and occupational therapy by prescription are encouraged and the ward personnel are taught the importance of enthusiastic participation.

Routine Mantoux tests and chest X-rays are taken every six months on all personnel assigned to this ward. In so far as possible assignment of personnel with negative Mantoux tests is avoided.

*Conclusion*

Although this hospital is in an isolated section the turnover of nursing personnel is amazingly low. In 1949, we lost seventeen nurses by resignation or transfer. The reasons for resignations are as follows:

| | |
|---|---|
| Pregnancy | 6 |
| Marriage | 3 |
| School | 2 |
| Military service | 1 |
| Health | 2 |
| Transfer | 2 |
| Another position | 1 |
| Total | 17 |

We lost sixteen aides by resignation or separation. The major portion of this group we felt was not adapted for this type of service.

Contributions for this article were made by the following:

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# WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT THE MEDICAL ASPECTS OF ATOMIC WEAPONS AND ATOMIC WARFARE

(Continued from May, 1950, Issue — page 159)

## The Hydrogen Bomb and Radiological Contamination

The problem of radiological contamination may be infinitely more serious following the detonation of a hydrogen bomb. On 26 February, 1950, Dr. Hans Bethe, Physicist of Cornell University; Dr. Frederick Seitz, Physicist of the University of Illinois; Dr. Leo Szilard, Biophysicist, and Dr. Harrison Brown, Chemist, both of the University of Chicago, all took part in a University of Chicago Round Table Broadcast about the hydrogen bomb and its potentialities.[12] They said the facts are as follows: The H-bomb as conceived in theory, would create huge amounts of atomic particles called neutrons. These neutrons can change harmless atoms of metals like cobalt, carbon, sodium, etc., into radioactive, poisonous atoms. Therefore, it would be possible to put these harmless chemicals around the H-bomb which would turn these chemicals into fantastic radio-active killing dusts at the instant the missile was detonated.

It would take only 500 tons of heavy hydrogen, whether in one H-bomb or a number of them to make a sufficient amount of such a radioactive dust to kill everyone in the world, Dr. Szilard declared; and none of the other three distinguished scientists with him at this round table discussion took issue with this statement. Dr. Szilard said such an H-bomb would release 50 tons of neutrons which would be enough to make a radioactive dust that would settle over the world and that would remain radioactive for five years.

H-bombs could be rigged to produce dusts of short or long-lived radioactivity. One of these H-bombs designed to produce dust with a short half-life might be used by one nation against an enemy nation in the hopes of only poisoning the inhabitants of the latter country, the scientists agreed.

However, the project might backfire; for getting the dust to fall on one area would require a vast and exact knowledge of wind and weather. Weather science is not yet exact enough at the present time; but it is known that the prevailing winds are westerly, and such high-altitude winds could spread the dust from a general suicide H-bomb completely around the world. If an H-bomb were exploded in the Pacific, the radioactive dusts would probably first affect the Western Coast of the United States. One hydrogen bomb would have tremendous destructive power as far as buildings and people in the locality of the bomb burst were concerned (figure 1). Mr. Bethe stated: "We can assume, I think that it is certain that a bomb used in war will be at least a hundred times as big as the present atomic bomb. The figure of a thousand times has been used, and I use it for the sake of argument."

"What would it mean if you had a bomb which is a thousand times more powerful than the present atomic bomb? This would mean that the range of blast destruction would increase tenfold — that a hundred times the area would be destroyed as by an atomic bomb. If a bomb were exploded at some place, then ten miles away from it there would be almost complete destruction. That would mean that a city as big as New York (the greater New York area), the biggest cities on earth, could be destroyed by one single bomb." (See figure 1 — 1st installment.)

Mr. Seitz stated: "There is one factor which I would like to add which concerns itself with flash burns. It is generally known that about 30 percent of the casualties at Hiroshima resulted from flash. The flash extended out to about two-thirds of a mile. Now, the indications are that the flash effect would be at least thirty times larger in the H-bomb. That means that the flash effect would extend out to twenty miles, so that people would suffer severe flash burns at that distance."

A single hydrogen bomb, not designed with an outer covering of some suitable element arranged to capture other neutrons for the purpose of producing radioactive dust, would not create much damage from the standpoint of residual radioactive contamination. The carbon in the surrounding air would become radioactive but would be sufficiently diluted by the prevailing winds to render it harmless. However, Mr. Bethe did say: "In the H-bomb neutrons are produced in large numbers. These neutrons will go up into the air; and in the air they will make radioactive carbon 14, which is well known to science. This isotope of carbon has a life of five thousand years. So if H-bombs are exploded in some number, then the air will be poisoned by the carbon 14 for five thousand years. It may well be that the number of H-bombs will be so large that this will make life impossible.[11, 12]

These are frightening and terrifying scientific facts that, at the moment defy a satisfactory defense. However, it is well to remember that without exception in the past, a satisfactory defense has always been found against every new offensive weapon that has been invented. No doubt, a satisfactory defense will be found against the H-bomb if this weapon can be made to work.

There are two hopeful facts:

One is that it may not be possible ever to make a hydrogen bomb that can be detonated. Thus far, it has not been made and it is not yet definitely known how it will be made, according to Dr. Bethe. He has estimated that it would take at least three years before it is known whether an H-bomb can be made.

The second is that the H-bomb would be big and heavy. How to deliver it by plane or guided missile will also be a tough problem that would have to be solved before the H-bomb could be used in warfare against an enemy nation.

Although we sincerely hope that the H-bomb can never be made, and if it is ever made, that there will never be an H-bomb war, it would be most unwise to assume there will never be an H-bomb or a war in which H-bombs were used. On the contrary our civil defense planning should be carried out on the assumption that we are certain there will be an H-bomb and that such missiles will be used against us. The technological preparations, which alone will cut down the enormous casualties if these new H-bombs are dropped upon our closely packed civilian centers or on our western shores, must not be left to chance or to hurried last minute efforts.

## Residual Radiation

Residual radiation could be expected to come from three main sources after an ordinary atomic bomb explosion,[10, 11] or after the explosion of an H-bomb.[12]

a.) Fission products produced by the splitting of atoms in the bomb explosion and deposited on the surface of the earth and on structures within the region of the bomb burst or in the wake of the air burst as it was dispersed downwind from the bomb site.

b.) Unfissioned uranium or plutonium similarly deposited on the surface of the earth and structures on the surface of the earth.

c.) Materials made radioactive by the radiation emitted during the explosion, and either already on the surface or afterwards deposited there. It is this latter possibility that gives to the hydrogen bomb its colossal lethal capabilities.

The residual radiation does not include neutron beams but comes from gamma-rays and from alpha and beta particles. The latter two are chiefly dangerous only when emitted by materials lodged inside the body, but they can injure the skin when they strike outside the body. The alpha particles have great ionizing power — 10,000 times that of gamma-rays but the former are stopped by an inch or two of air, by a sheet of paper, or by the surface layers of the skin, which they affect much like a burn. These alpha-particles would be dangerous in contact with the skin or if ingested or inhaled into the body.

Beta particles have 100 times the ionizing power of gamma-rays but can travel only a few yards through the air. Ordinarily they also can be stopped by a sheet of paper or by clothing and will penetrate only about a fifth of an inch into the skin, which they effect very much like a burn. The beta particles are emitted, along with gamma-rays, by fission products and other materials made radioactive by the explosion; but they are most dangerous if the substances are taken into the body.

## Internal Radiation

Residual radiation is dangerous both as a source of external radiation and as a reservoir of internal radiation if accidentally taken into the body in any quantity and lodged there.[10, 11, 12] These radioactive materials may be inhaled into the lungs when one is exposed to the base surge, or is in the radioactive cloud that follows the air burst, or may be taken into the alimentary tract by the ingestion of contaminated food or water, and through a wound. They are particularly destructive when retained in the body for some time. Under such conditions, internal radiation can cause acute radiation illness, if widely enough distributed, and can destroy or seriously interfere with vital functions of the body, and can even cause cancer. Methods for prevention of the internal radiation hazard will be taken up in detail in the next article to follow in an early issue of The Journal of the Maine Medical Association.

## Acute Radiation Sickness or Syndrome

The clinical effects of the external nuclear radiation with neutron-beams and gamma radiations on the human body have been carefully studied in Japan.[2, 3] It has been shown that heavy exposure to such penetrating radiation causes a massive breakdown of the tissues in certain organs of the body and that this destruction of cells in various tissues reaches its maximum at different times after the exposure. Therefore, the symptoms from these injuries in the various organs of the body will appear at different times.

Bone marrow, lymphoid tissue, the sex organs and the mucous membranes of the small intestine were the most heavily damaged. The skin, liver and lungs were injured less than the above mentioned organs but were damaged more than were the muscles, nerves and mature bone.[8, 9]

Cells did not die for hours or even days unless they were subject to very heavy lethal doses of radiation. The skin, when injured, would usually show only a surface reddening and swelling of the underlying tissues for a week and blistering and loss of dead skin was ordinarily delayed for two weeks.

The sequence of symptoms has been described from the case records of Japanese exposed to atomic bombings and uncomplicated by blast damage or flash burns.[3] These symptoms among all exposed to heavy radiation were, in general, the same; but the time intervals of various phases of the acute radiation sickness varied according to the severity of the exposure.

Among the Japanese who received 600 roentgens or more of radiation, the onset of the illness was violent and, in about three-fourths of the cases, the first symptoms appeared within a half hour of exposure. There was great weakness, nausea, vomiting, diarrhea, fall in blood pressure and death within the first twenty-four hours.

Those persons who received around 400 roentgens or less developed such additional symptoms as loss of hair and were prone to have severe infections. The illness of the typical patients in this group went through four phases as follows:

Phase I These patients became nauseated, vomited and suffered from general prostration and weakness within an hour or so after the exposure to the heavy radiation. The blood pressure might fall a little and diarrhea might occur. The symptoms in this phase were quite similar to those of "radiation sickness" suffered by patients treated intensively with X-ray or radium; and in general, the heavier the dosage the more ill the patients became.

Phase II Symptoms tended to disappear within a few hours after the onset of the illness and the patients felt less ill for a period of a few days to several weeks. This asymptomatic period was shorter for those patients that sustained the heaviest radiation.

Phase III The patients again became apathetic and developed fever and rapid heart action. There was increasing weakness and loss of weight. The appetite was lost, nausea and severe diarrhea, which was sometimes bloody, would recur. Small petechia and hemorrhages often appeared in the skin and bleeding from the gums would occur (figure 17). Infected ulcers would appear and spread throughout the mouth and alimentary tract in severe cases. The hair fell from the head and body about three weeks after the initial exposure (figure 18).

The illness reached its height during this third phase. Whether or not the patients survived depended on his ability to endure this acute stage. The slightly injured recovered relatively quickly; but those that



FIGURE 17

*Epilation* and *Glass cuts* on back of head. (Armed Forces Institute of Pathology.)



FIGURE 18

Hemorrhages and Stomatitis. (Armed Forces Institute of Pathology.)

received a heavier dose of radiation continued gravely ill for weeks. The most severely injured often grew progressively worse over a period of weeks and eventually succumbed while other severely injured died with in a few days.

Phase IV Those persons who survived the third phase entered into the fourth or convalescent phase which was characterized by a feeling of weakness and fatigue. It often required months for these patients to regain their normal strength and weight. The hair, if lost (figure 17), gradually reappeared and the skin hemorrhages disappeared. The ordinary methods of examination usually showed that these patients had completely recovered within six months.

Laboratory tests showed that other types of damage were present during the acute radiation illness. There were changes in the blood cells which accounted for several of the symptoms of the third, or acute phase of the illness. The infections and ulcerations arose because the radiation destroyed the polymorphonuclear cells that normally combat bacteria and prevent infection. The white cells began to decline in number a few days after the radiation exposure, and in severe cases, they almost entirely disappeared. Skin and gum hemorrhages appeared as the number of platelets in the blood dropped in number and as the anticlotting substance that resembled heparin increased. These platelets did not drop until an interval of weeks and reappeared during convalescence in the blood of those that survived. Another very serious effect upon the blood was the fall in the red cell counts which resulted in severe anemia and contributed to the general weakness and disability which were both so marked in acute radiation sickness. This decline in the number of red cells began immediately after the exposure and often continued for months. Subsequent research studies indicated that these blood changes were caused by radiation damage to the bone marrow and to the lymphoid tissue where these various types of blood cells were produced. The radiation caused the cell division to stop immediately after the exposure while the structural changes characterized by disorganization and swelling appeared more gradually.

### Treatment of Radiation Injuries

Very little can be done in the way of treatment of those radiation casualties who received lethal doses of gamma-rays and neutron beams; but fortunately, this statement is not true when the exposure is in the median lethal range. In the pamphlet entitled "Medical Aspects of Atomic Weapons"[2] issued by the National Security Resources Board, it is stated that: —"Many borderline cases can be saved by:

a. "Good medical and nursing care."

b. "Whole blood transfusion, given as may be required in the individual case until the bone marrow has had time to regenerate and produce blood."

c. "Control of infection by antibiotics such as penicillin."

d. "Intravenous feedings to supply necessary sugars, proteins, and vitamins."

e. "Control of bleeding tendency by use of drugs."

It has been estimated that, for a catastrophe such as the one at Hiroshima, approximately 250,000 pints of blood would be needed; and of this amount about 80,000 pints would be needed per week for the first three weeks. Thereafter, only a nominal amount of whole blood would be required. The mechanical injury and the burn cases would require the blood transfusions during the first few days and the radiation sickness cases would be in need of the transfusions during the first few days and the radiation sickness cases would be in need of the transfusions after the first week to ten days following the atomic explosion.

The time factor favors the evacuation of victims to unbombed areas where better nursing care could be provided. Furthermore, the obtaining of blood from donors, the processing of it and the transportation of it to the operation areas are all favored by this same time relationship.

In conclusion, it should be pointed out that present civilian defense plans are nearly obsolete because techniques of warfare have developed so rapidly during the past few years. After the joint atomic committee had discussed civil defense with the Atomic Energy Commission on 17 February of this year, one law-maker is reported to have said that "tin hats and sand buckets are not going to solve this problem."

In the booklet entitled — "Medical Aspects of Atomic Weapons"[2] on page ten, the following statement is made:—"Adequate care to injuries and burns suffered in an atomic explosion presents a problem of great magnitude. While the types of injuries, aside from the radiation hazard, are similar to those encountered in ordinary bombing or other catastrophes, the large numbers of individuals involved in an atomic blast, and the general chaos that results, present a problem whose solution requires a great deal of careful planning and preparation."

"Fortunately, severe symptoms from radiation in those not killed outright do not ordinarily come on until several days after the acute exposure, therefore, those suffering from burns and mechanical injuries will actually constitute the chief immediate medical problem and will make their heaviest demands on

emergency facilities well before the time that those suffering solely from radiation sickness will require a substantial amount of medicine and nursing care."

It was approximately three days after the detonation of the first atomic bomb over the Japanese city of Hiroshima before any outside medical aid reached the survivors of the stricken city. Had proper medical care been quickly available, it is probable that many of the Japanese who died from burns, as from other causes, might have been saved. The tremendous death toll of 66,000 must be weighed in relation to the fact that all medical care for days after the atomic blast was totally disorganized and medical supplies were practically nonexistent.

If we are to minimize and cut down on the enormous casualties that will result from the dropping of a new atomic or hydrogen bomb over our closely packed civilian centers, we cannot leave to chance, or to hurried last-minute action, the technological preparations which will be necessary in order that our civilian population can be assured of adequate emergency medical care in this atomic era. As Surgeon General R. W. Bliss has said:[1] "The responsibility of the doctor for the safety, for the sheer survival of great masses of the population, if a new conflict comes, is gigantic." It is hoped that every doctor will coöperate in a steady improvement of the defenses which must be prepared.

## Public Health Aspects of Atomic Explosion

Public health has been defined as that branch of medicine that deals with the relationship of the individual to the community and of the community to the individual. Therefore, it is certainly in order at this time to focus upon the role of preventive medicine in the event of an enemy attack upon this country by means of orthodox high explosives or of the more powerful new atomic and hydrogen bombs.

Self help as the basis upon which our present day Civil Defense Organization must be developed. Civil Defense personnel and specially trained Civil Defense and Public Health teams should carry on the necessary preventive medicine activities in event an enemy nation should inflict serious damage to any of our thickly settled industrial areas. Furthermore, as a matter of fact, much of the work in the preventive medicine field should be started immediately if an attack upon our nation is considered possible within the next three to five years. The population from the age of ten years and up should receive instructions in the basic principles of individual hygiene, in group and community sanitation, in first-aid, and in the plans for, and routes of evacuation.[15] All civilians must be instructed in regard to the purification of drinking water and should be properly informed about the probable contamination of unprotected food and water supplies by radioactive dust after an atomic explosion; and they should be made thoroughly familiar with the seriousness of the internal radiation hazard which would result from the ingestion of any residual radioactive materials which were carried into the alimentary canal on contaminated food or in contaminated water.

Serious thought should also be given to the advisibility of mass immunization of the general civilian population prior to the start of another war.[16] The large number of burns and mechanical injuries to be expected amongst the civilian population and the almost inevitable disruption of the regular water supply and of the sewage disposal systems that would result from an atomic explosion suggests that immunization of the general population against such diseases as typhoid and paratyphoid fever, typhus fever, tetanus, smallpox, etc., would certainly be highly desirable if not actually imperative.

The great demand for blood donors to furnish the tremendously large amounts of whole blood and of plasma transfusions that will be required in event of atomic warfare makes it imperative that serious consideration be given to the advisability of requiring all civilians to have their blood types determined and of devising some simple means for recording such data for each individual of the civilian population so that this important information would always be quickly available in event any of these persons were injured and required medical treatment.

Proper psychological preparation of both the military personnel and of the civil population for atomic warfare is also of great importance.[17, 18] The public should be kept mentally prepared for what it may have to face one day in the future in this atomic age; and all civilians and all soldiers should be made thoroughly familiar with exactly what they are expected to do in event of an unexpected attack by an enemy nation using either orthodox high explosives or atomic missiles.

The immediate and adequate application of the principles and the practices of preventive medicine in the event of such an attack with high explosives or atomic bombs is imperative and is certainly equally as important as the actual medical care of and the rescue of casualties. Water mains and sewers may be broken by the explosive force of the bombs with the resultant contamination of the water supply; power plants and electrical lines will be put out of commission: and, as a result, refrigeration may fail and stored foods may deteriorate rapidly. Well protected underground caches of food, medical supplies, dressing, clothing, etc., will be needed to meet these emergencies. Protected reservoirs for emergency distribution of portable water will be urgently needed. In the event of an atomic explosion the doctor, or someone especially trained along such lines, will be required to assist in assaying the hazard and to advise the civilian popu-

lation in regard to whether or not food and water in the immediate vicinity of the atomic detonation is safe for consumption. The necessary physical findings will need to be supplied to him by specially trained personnel such as the meteorologists, geologist, oceanographers, etc.

Civilian defense task-teams composed of preventive medicine specialists will need to be trained and should be ready and prepared to go into action immediately following an atomic attack.[19] These teams would replace the bombed out personnel of the public or privately-owned municipal utilities and sanitary services.

A small specialized preventive medicine group consisting of laboratory specialists, health physicists, sanitary engineers, epidemiologists, specialists in the diagnosis of infections and contagious disease, and technical assistants should be available. This group should assess public health hazards and instigate suitable preventive measures before there was an opportunity for any such contagious or communicable disorders to get started in epidemic proportions.

Radiological safety teams, consisting of atomic physicists, radiological safety officers, health physicists and radiological safety technicians must be organized and trained.[15] The atomic energy commission has already set up schools in various parts of the country to train this specialized personnel. These radiological safety teams should be the first element to enter a bombed area; and these specialists would determine the extent and the intensity of the residual radioactive contamination and would issue directions relative to the areas in which rescue work and evacuation might be carried out and the time limits for work per person per twenty-four hours in each area.

Decontamination centers would have to be set up near the border of all such contaminated areas and all traffic in and out of these areas would need to be controlled. In order to prevent dissemination of such radioactive residual by personnel, facilities must be provided for the removal of all outer clothing from persons leaving such contaminated areas. Then, facilities for removal of all outer clothing and for a change to overalls, hat, gloves and boots must be provided for personnel entering the contaminated areas. All food and tobacco must be left behind. Efficient monitoring of all personnel leaving the area must be provided. Adequate facilities must be available so that all personnel leaving the area can wash face, neck and hands thoroughly five times with soap and water, remove clothing and then re-apply soap and thoroughly wash the entire body five times. The monitor must be located in a room between the shower and the uncontaminated side in order that all individuals can be checked for residual radioactive materials and declared free of body surface contamination before being permitted to go to the "clean" side to put on fresh clothing. An adequate clean clothing supply, especially shoes, will present a difficult problem for evacuees leaving the area.

Finally, adequate arrangements must be made for rapid collection, identification, and burial of dead civilians killed by an atomic bomb or H-bomb blast. This is especially important in the hot weather where there will probably be a plague of flies. Arrangements must be worked out whereby the names of those dead and the causes of death can be adequately reported and recorded.

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(10) "The Effects of Atomic Bombs on Hiroshima and Nagasaki" — United States Strategic Bombing Survey. Government Printing Office, 1946.

(11) "Atomic Energy and the Life Sciences" — United States Atomic Energy Commission. Government Printing Office, 1949.

### Acknowledgement

Much of the scientific data included in this article has been made possible by unclassified information which has been released by the Surgeon General and published in the Bulletins of the U. S. Army Medical Department and by the Atomic Energy Commission in certain of their unclassified publications. The Committee on Emergency Civilian Medical Defense of the Maine Medical Association is grateful to the Armed Forces Institute of Pathology, to the Surgeon General's Department and to the Surgeon of the First Army for permission to reproduce certain of the illustrations used in this article.

## HOSPITAL STAFF MEETINGS

Open to the Profession

| CITY | HOSPITAL | DATE |
|---|---|---|
| Augusta | Augusta General Hospital | 1st Wednesday |
| Bangor | Eastern Maine General | 2nd Tuesday |
| Bath | Bath Memorial Hospital | 1st Tuesday |
| Belfast | Waldo County | 2nd Friday |
| Biddeford | Webber Hospital | 2nd Thursday |
| Boothbay Harbor | St. Andrew's Hospital | 4th Tuesday |
| Caribou | Cary Memorial | 1st Wednesday |
| Damariscotta | Miles Memorial | 2nd Thursday |
| Farmington | Franklin County Memorial | 2nd Monday |
| Greenville | Charles Dean Hospital | 2nd Wednesday |
| Hartland | Scott Webb Memorial Hospital | 1st Wednesday |
| Lewiston | Central Maine General | 1st Monday |
| | St. Mary's General | 2nd Monday |
| Portland | Maine Eye and Ear Infirmary | 1st Tuesday |
| | Maine General | 2nd Friday |
| | Mercy | 3rd Thursday |
| Presque Isle | Presque Isle General | 1st and 3rd Tuesdays |
| Rockland | Knox County General | 1st Monday |
| Rumford | Rumford Community | 4th Wednesday |
| Sanford | Goodall Memorial | 2nd Monday |
| Waterville | Sisters | 2nd Tuesday |
| | Thayer | Every Thursday |

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

# EDITORIAL

## A Resume of the Interim and Special Meetings of the House of Delegates

The House of Delegates of the Maine Medical Association in session June, 1949, voted that an interim meeting be held during the Fall Clinical Session and a Special Meeting in April. The purpose of these meetings being to familiarize the official county delegates with matters which would be brought up for consideration and action at the annual meeting in June, 1950. The delegates in turn would present these matters at their respective county society meetings and so be prepared to act in accordance with the wishes of their county members.

At the Interim Meeting held in Waterville, November 6, 1949, during the Clinical Session, twenty-eight delegates responded to the Roll Call.

Dr. Stephen A. Cobb of Sanford, Chairman of the Committee on Revision of the Constitution and By-Laws, stated that a meeting of his committee was held in Augusta, October 9th, at which time a careful examination, article by article, of the present Constitution and By-Laws and certain changes and alterations were suggested. He reminded the delegates that the committee had recommended at the June, 1949, meeting that the Association be incorporated under the non-profit statute. This recommendation was published in the December, 1949, issue of the JOURNAL, page 378, and in May, 1950, page 143. A copy of the suggested revision in the Constitution and By-Laws has been sent to each delegate and alternate.

Other reports presented at this meeting were by: Dr. Martyn Vickers, Chairman, State Committee for the National Education Campaign; Dr. Eugene H. Drake, Chairman, Medical Insurance Committee; Dr. Charles W. Steele, Chairman, Committee on Emergency Civilian Defense; and Dr. C. Harold Jameson, Council Chairman. The annual reports of the above-mentioned committee chairmen appear in this issue of the JOURNAL, and Dr. Jameson's report will be presented at the First Meeting of the House of Delegates in June.

The April meeting was held at the Senate Chamber in the State House on the 5th, with thirty-three delegates present.

Dr. John F. Conlin, Director of Medical Information and Education of the Massachusetts Medical Society, presented a most interesting address on "Medicine, In Politics and Out."

Dr. Jameson, Council Chairman, presented a summarized financial statement. There have been several changes in this statement since that time and a copy sent to each delegate and alternate with the Council suggested budget for 1950-1951, for study before the June meeting.

Dr. Carl E. Richards presented a brief report relative to the program for the June meeting. Dr. Cobb presented a supplement to the original report of the Committee on Revision of the Constitution and By-Laws. A copy of his report has been sent to each delegate and alternate, and will be presented to the House of Delegates for action, during the annual session at Poland Spring, June 18, 19, and 20.

In closing this meeting of the House of Delegates, your President-elect, Dr. Foster C. Small of Belfast, stated, "We are definitely getting to the crossroads, Gentlemen, as you have heard today from Dr. Conlin. The year ahead is going to be hard and difficult. I am certain that you, of this House of Delegates, are more informed of what we have in anticipation than you would otherwise have been, if we hadn't had this meeting today. Therefore, I am going to encourage you to do everything possible to bring these things to the attention of your communities. . . . I also want to encourage you to be at Poland Spring in June, and I am sure that Dr. Goodwin wants you to come, too. Let us make a grand showing for the State Association meeting; let us show that we are alive, and enthusiastic, and that we are actually going places."

# NECROLOGIES

## George R. Campbell, M. D.

### 1867 - 1950

Dr. George Russell Campbell, dean of Augusta physician-surgeons, Augusta General Hospital emeritus staff member, died February 27, 1950, at his home after a long illness.

Dr. Campbell, the oldest member of the Augusta General Hospital in terms of years of service, had been on the staff since 1900. Serving later on the honorary staff he was brought back into the active-inactive service during World War II.

Dr. Campbell was born in Waterville, April 20, 1867, son of Dr. and Mrs. Henry Campbell. He was graduated from Coburn Classical Institute and from Colby College. He received his medical degree from Bowdoin Medical School in 1895.

On the medical staff of the Augusta General Hospital for 10 years in 1910, Dr. Campbell went to England, spending some time in the London hospitals in study and research. Returning to his duties with the local hospital, he served for 30 years on the surgical staff. At one time he was engaged in doing bacteriological work for the Augusta State Hospital.

Dr. Campbell was a member of the American Medical Association, the Maine Medical Association, the Kennebec County Medical Society, and was a 32nd degree Mason.

He is survived by his widow, Mrs. Lilian Huntington Hallock Campbell, a daughter, Mrs. Wilfred T. Daley and a granddaughter, Mrs. John Forrest Snow of California.

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## Harold Josselyn Everett, M. D.

### 1883 - 1950

Harold Josselyn Everett, a member of the Portland Medical Club for over forty years, died suddenly while making a professional call on January 5, 1950, at the age of sixty-six.

Dr. Everett was born in Portland on October 12, 1883, and had spent his entire professional life here except for two years as a medical officer in the United States Army during World War I. He was a graduate of Portland High School, of Bowdoin College in 1904, and of Bowdoin Medical School in the class of 1907. After internship at the Maine General Hospital and the Boston Lying-In Hospital, he entered private practice here in 1909. In the summer of 1913, he studied obstetrics in Berlin, Vienna and other European centers.

From 1909 until its close in 1921, he was instructor in obstetrics in the Bowdoin Medical School. During this time he established the first prenatal clinic in Maine, originally in the old Edward Mason Dispensary, and later in the Out-Patient Department of the Maine General Hospital. Associate Chief of Obstetrical Service at the Maine General, he was active in building up that service, and during the years of World War II, his continuous and unselfish devotion to duty in that department undoubtedly contributed to the heart ailment which eventually caused his death.

Dr. Everett was a past president of this club and of the Cumberland County Medical Society. He was also a member of the Maine Medical Association, the American Medical Association, and the New England Obstetrical and Gynecological Society. In all these capacities, he took an active interest in all questions relating to the progress and advancement of the medical profession, and his enthusiasm and sound judgement were of inestimable value. His care and consideration for his patients, regardless of their social status, was marked by a gentleness and solicitude which endeared him to all who sought his professional advice.

His presence will be greatly missed, and to his widow and family we extend our sincere sympathy and sorrow in their loss and ours.

Roland B. Moore, M. D.
Theodore M. Stevens, M. D.

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## William E. Lightle, M. D.

### 1868 - 1950

Dr. William E. Lightle died at his home in North Berwick, Maine, May 1, 1950, at the age of 82. He was born in Menno, Pennsylvania, January 1, 1868. He was educated at the University of Maryland Medical School, from which he graduated in 1894. He went to North Berwick in 1897 and has practiced there ever since.

He received his 50-year medal from the Maine Medical Association in 1944, and his 5-year bar in 1949.

He is survived by his wife, Caroline Lightle, and a nephew who has always lived with him, Matthew Highlands, who is a research worker for the United States Government, presently located at the University of Maine. Dr. Lightle was a Knight Templar Mason and was very interested locally in all civic problems.

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## Eaton Shaw Lothrop, M. D.

### 1900 - 1949

Dr. Eaton Shaw Lothrop of Portland, died November 23, 1949.

Dr. Lothrop, son of the late Warren E. and Mary Carolyn Lothrop, was born in Portland, Maine, May 31, 1900. He attended the local schools and did his pre-med work at Bowdoin College. He received his Medical Degree from Boston University in 1925.

Dr. Lothrop served his internship at the Maine General Hospital, Portland, Maine. During his first year of practice he was City Physician for the City of Portland. September 1, 1942, he went on duty with the 67th General Hospital Unit and was a member of the Surgical Division of that hospital during his service of 17 months overseas. Because of failing health he was returned to this country and received an Honorable Discharge from the Army. Continued poor health made it necessary for Dr. Lothrop to resign his position as Associate Surgeon at the Maine General Hospital and to discontinue his active staff participations.

He was a member of the staff at the Maine Eye and Ear Infirmary, Children's Hospital, Mercy Hospital and Temporary Home for Women and Children as well as Associate Surgeon at the Maine General Hospital. He was a Fellow of the American College of Surgeons, a member of the Portland Medical Club, Cumberland County Medical Society, Maine Medical and American Medical Associations.

In non-professional activities he was a member of Alpha Delta Phi fraternity, Masons, Veterans of Foreign Wars, American Legion and Veteran Motor Car Club of America.

Dr. Lothrop's early death came as a great sorrow to his many patients and friends who never realized the seriousness of his illness. We, his professional friends of the Cumber-

County Medical Society, extend to his widow and three children our most sincere sympathy.

Respectfully submitted,

Dr. E. R. Blaisdell,
Dr. Joseph G. Ham,
Dr. Alvin A. Morrison,

*Resolutions Committee,*
Cumberland County Medical Society.

## Percy S. Merrill, M. D.

### 1872 - 1949

Dr. Percy S. Merrill, 77, prominent Waterville physician, died at his home, September 10, 1949, after an illness of nearly two years.

Dr. Merrill was born in Bangor, Maine, November 2, 1872, the son of Albert Ford and Harriet Thomas Merrill. He attended the Waterville schools, was graduated from Colby College in 1894, and from the New York University College of Medicine in 1899. He began his practice in Gardiner and moved to Waterville in 1900 where he had since resided.

In June, 1949, he was awarded a Fifty-Year Service Medal by the Maine Medical Association. He was a member of the American Medical Association, Maine Medical Association and Kennebec County Medical Society.

He is survived by his widow, Mrs. Mina Miller Merrill.

## Joseph A. Villa, M. D.

### 1907 - 1949

Dr. Joseph A. Villa, 41, of South Paris, died October 27, 1949, of a heart ailment.

Dr. Villa was born in Hartford, Connecticut, December 25, 1907, son of Frank Mario and Elvira Sylvester Villa.

He was graduated from Hartford High School in 1925, Niagara University in 1929, and from the Georgetown University Medical School in 1934.

Dr. Villa served as Captain and Major with the Army's 67th General Hospital in England during World War II. He was a member of the American Medical Association, Maine Medical Association and Oxford County Medical Society.

He is survived by his widow and one son.

## In Memoriam

### Members Deceased Since May 31, 1949

| | |
|---|---|
| Campbell, George R., | Augusta |
| Cobb, William O., | Gardiner |
| Everett, Harold J., | Portland |
| Hagopian, Leon G., | Southwest Harbor |
| Kyes, Preston, | North Jay |
| Libby, Ara B., | Gardiner |
| Lightle, William E., | North Berwick |
| Lothrop, Eaton S., | Portland |
| Merrill, E. Delmont, | Dover-Foxcroft |
| Merrill, Percy S., | Waterville |
| Stuart, Albert F., | Portland |
| Villa, Joseph A., | South Paris |
| Walters, Wilson H., | Fairfield |

## COUNTY SOCIETIES

**Androscoggin**
President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Paul A. Jones, M. D., Union
Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Linwood M. Rowe, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Albert J. Bernard, M. D., Skowhegan
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Androscoggin

The May meeting of the Androscoggin County Medical Society on the 17th, was a combined meeting with the Women's Auxiliary, at the Auburn Y. M. C. A., with 51 people attending.

Dr. Giguere introduced the head table guests after welcoming the guests. Mrs. Steele, State Auxiliary President, reviewed the organization and activities of the Auxiliary. Mrs. Tibbetts, County Auxiliary President, extended greetings of the County chapter. Dr. Goodwin, President of the Maine Medical Association, urged attendance at the M. M. A Convention and congratulated the Auxiliary on its accomplishments.

Dr. Giguere then introduced Dr. William Holt, of Portland, guest speaker, who reviewed the organization of the American Cancer Society and its program. He discussed some features of early cancer.

Following the speaker, a brief business meeting was held.

DEAN FISHER, M. D.,
*Secretary.*

## Aroostook

The annual meeting of the Aroostook County Medical Society was called to order by President Donovan at 8.15 p. m., May 23, 1950, following a delicious chicken dinner, in the Silver Room of the Northland Hotel, Houlton. There were 15 members present.

Guests present were: Dr. John Lynch, Chief of Thoracic Surgery, St. Elizabeth's; John A. Rodick, Counselor, State Vocational Rehabilitation, Department of Education; W. Mayo Payson, Executive Secretary, M. M. A.; Dr. Norman Nickerson, Councilor, M. M. A.; Dr. H. C. Bundy, Chief Surgeon, B. & A. R. R. Co.; Mrs. Norman Nickerson and Mrs. H. C. Bundy.

The recently organized Women's Auxiliary members were guests at the dinner and remained for the speakers before retiring for their annual business meeting.

Mr. John A. Rodick introduced the State Vocational Rehabilitation program and illustrated with a color sound movie "Comeback" which was greatly enjoyed.

Mr. W. Mayo Payson complimented the doctors on their better public relations during the past year. Fewer people are in favor of State medicine. He emphasized continued effort by every means, including pamphlet distribution, talks on radio and to other organizations. He stressed the need for active participation in politics by each individual but not as an organization.

Dr. Norman Nickerson gave greetings and spoke of some of the work of the Committee on Medical Education.

Dr. John Lynch, the guest speaker, gave a very clear and interesting talk on modern trends in Thoracic Surgery, illustrated by the use of slides of various conditions commonly found.

The business meeting was called to order at 10.00 p. m. Minutes of the last meeting were read and accepted. The annual report of the treasurer was read and accepted. There were no committee reports pending. Announcements and correspondence was read from the desk of the Secretary.

The following Officers were elected for 1950-1951:

President, Dr. Armand Albert, Van Buren.

Vice President, Dr. Gordon N. Johnson, Houlton.

Secretary-Treasurer, Dr. Clyde I. Swett, Island Falls.

Board of Censors: Dr. Storer W. Boone (1951), Dr. Clement Donahue (1952), Dr. Thomas G. Harvey (1953).

Voted—That the Society go on record as favoring the project of the Maine Heart Society in establishing a monthly

free heart clinic in Aroostook County. This clinic is to be under the direction of Dr. Wilfred Comeau, Bangor. Indigent patients will be seen free in the morning and private, pay cases will be seen in the afternoon by way of remuneration for those giving time in the clinic in the morning. Only patients referred by MD's will be accepted.

Voted—That a standing committee on Hospital Relations be created with membership to be composed of the chief of staff of each hospital in the County. The purpose is to study problems common to the Hospital Boards of Trustees and the local medical profession. At this time, this committee could well work on the problem of obtaining a competent roentgenologist for the area.

Discussion—Scientific sessions: It was felt that the Society would be more effective with at least four sessions a year devoted to scientific subjects; that many of the papers could be given by our own members; thereby creating interest and encouraging local men to give more careful study to their cases.

Voted—That a Scientific Committee be appointed consisting of: Gordon Johnson, Chairman; Rosario Page, and Herrick Kimball.

Voted—That the annual Ladies' Day be held at the camp of Dr. Kimball, Cross Lake, in conjunction with Dr. Rosario Page, on Saturday, August 19th.

CLYDE I. SWETT, M. D.,
*Secretary.*

## Cumberland

A regular meeting of the Cumberland County Medical Society was held at the Maine General Hospital, Portland, on February 23, 1950. It was preceded by a Clinic conducted by members of the Attending and Resident Staff of the Maine General Hospital and was well attended.

After the dinner, the meeting was called to order by President Frank Smith. The business meeting was opened by a discussion of a Disability and Sickness Insurance Plan. It was voted that the President appoint a committee to investigate the situation. Since that time, the committee has been appointed and consists of Dr. John Lincoln, Dr. Joseph Porter and Dr. Donald Marshall. A letter from Dr. Eugene E. O'Donnell, Chairman of the Editorial Board of the MAINE MEDICAL ASSOCIATION JOURNAL was then read which in principle suggested that one or more articles be critically reviewed by some member at each County Medical Society at the County Medical Society Meeting. Various reasons for this were given. This plan, in principle, was approved by the Cumberland County Medical Society.

The following statement was read and unanimously approved by the Society:

"The Cumberland County Medical Society approves and endorses the position of the Medical Staff of the Northern Cumberland Memorial Hospital, located at Bridgton, Maine, in opposing an attempt to compel them to accept practitioners of all or differing schools as members of that staff or as practitioners in that hospital for the following reasons:

1. The Medical Staff of a hospital has responsibility for the quality of medical care furnished therein which that Staff cannot fulfill if it is made up or if practitioners of a different school are allowed to practice in the hospital.
2. A hospital staffed by or permitting practitioners of other schools to practice therein could not be registered or approved by the agencies which pass upon the qualifications of all hospitals in the American Hospital Association, nor could it be admitted to membership.
3. Doctors of medicine cannot ethically be associated with practitioners of other schools whose theory and practice of the healing arts is not sanctioned or approved by the American Medical Association.

Resolutions regarding Dr. Eaton Shaw Lothrop were read and approved.

Dr. Ethan Allan Brown, Chief of the Allergy Clinic in the Boston Dispensary and Editor of the *Annals of Allergy*, guest speaker, was introduced by the President. Dr. Brown's subject was "Anti-histamines, Toxic Effects and Side Reactions." Dr. Brown brought out that there are over fifty preparations on the market and some fourteen hundred papers describing them and their effects. He stated that there are twelve known fatalities and opined that there were an equal number unknown. It was his opinion, however, that the most serious untoward reaction to the Anti-histamines was the impairment or loss of judgment.

In discussing their efficacy in general, Dr. Brown said that they were excellent in drug reactions and also angioneurotic edema, that they were, however, not equally effective in hay fever and even less so in asthma. Dr. Brown went into great detail in his discussion of recent methods of treatment investigation, pointing out in particular the pitfalls in assessing the efficacy of the drug, and particularly the one under discussion. He closed his discussion with the warning that the Anti-histamines are dangerous drugs, and should only be used under strict control, which should always include frequent blood counts and the patient should be carefully instructed in the side reactions.

RALF MARTIN, M. D.,
*Secretary.*

## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, on May 10. Eleven members and one guest were present. A committee was appointed to decide the society's actions relative to Diabetes Detection Week, the committee consisting of P. E. Black, Chairman; Mason Trowbridge, and C. H. Knickerbocker. A letter was read to the society by the secretary from the Department of Commerce relative to a recent poll of doctors.

Dr. Lawrence Cutler of Bangor presented a talk on "Anemia." Discussion followed.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## Kennebec

The regular monthly meeting of the Kennebec County Medical Association on April 20, 1950, began with dinner served in the Nurses' dining room of the Augusta General Hospital, Augusta. Twenty-eight members and guests were present.

Following dinner a brief business meeting was opened by the President, Dr. A. C. Hurd.

The minutes of the previous meeting were read and approved.

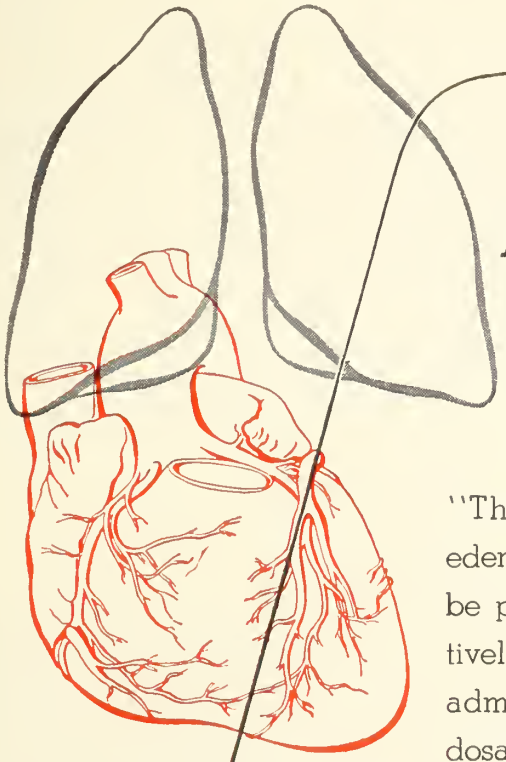
A notice of meetings held April 28th and 29th, in Lewiston and Waterville, on oral cancer—sponsored by the Maine Dental Association—was read. Members of the Medical Society were invited to attend.

Dr. Margaret Simpson of the Health and Welfare Department spoke briefly regarding Mental Health week.

Dr. Milton Greenblatt, Chief of laboratories and research at the Boston Psychopathic Hospital, guest speaker for the evening, was introduced by Dr. Simpson. He gave a very interesting talk on epilepsy. He stressed the importance of psychotherapy. This is important because of the epileptics' abnormal mental reaction manifested by such traits as hostility or aggression. These reactions are aggravated by society's attitude of revulsion — or by inability of the epileptic to have a normal sexual life or marriage. Dr. Greenblatt spoke of electroencephalograms and demonstrated with slides how epileptics had waves that differed from normal.

A brief period of questions and answers followed.

FRANK B. BULL, M. D.,
*Secretary Pro-tem.*



## *PULMONARY EDEMA AND PAROXYSMAL CARDIAC DYSPNEA*

"The development of pulmonary edema at night may in certain cases be prevented and in addition effectively treated by intramuscular . . . administration of aminophyllin in dosages of 0.5 Gm."[1]

The diuretic action of Searle Aminophyllin frees the tissues of excessive fluid; its myocardial stimulating action improves the efficiency of heart contractions.

G. D. Searle & Co., Chicago 80, Ill.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

**SEARLE AMINOPHYLLIN***

ORAL...PARENTERAL...RECTAL DOSAGE FORMS

*Contains at least 80% of anhydrous theophylline.

**SEARLE** *RESEARCH IN THE SERVICE OF MEDICINE*

1. Barach, A. L.: Edema of the Lungs, Am. Pract. 3:27 (Sept.) 1948.

## Washington

A regular meeting of the Washington County Medical Society was held on May 25, 1950, at the St. Croix Country Club, Calais, with 17 members and 2 guests present.

After an excellent lobster dinner, Dr. S. R. Webber of Calais, President of the Washington County Medical Society introduced Dr. Howard Apollonio of Rockland, Chairman of the Maine Committee on Fractures and other Trauma. Dr. Apollonio spoke on the purpose of the committee and its present aims. He spoke briefly on intermedullary fixation of fractures. Interesting cases for discussion were brought up by Dr. Esmond Stiles of St. Stephens, N. B., Dr. S. R. Webber of Calais, Dr. Charles Capron of Eastport, and Dr. James Bates of Eastport. Dr. Apollonio's talk and discussion was much appreciated.

At the business meeting, Dr. Harold Gordon Sears of Woodland, Maine, was elected to the Board of Censors to serve for two years. Frank Sammis, M. D., of Milbridge, was admitted to membership.

It was voted to hold the next meeting in Machias on September 14, 1950.

John E. Rigby, M. D., of Deer Island, N. B., was present as a guest.

KARL V. LARSON, M. D.,
*Secretary.*

## York

The May meeting of the York County Medical Society was held on Wednesday, May 10, 1950, at the Old Orchard Country Club, Old Orchard, Maine. There were 21 members and 2 guests present.

Dr. Clarke Miller, of Lewiston, spoke on "The Present Status of Atomic Bomb Casualties" with lantern slides. A lively question period followed.

At the business meeting, the State Convention was discussed and the Secretary's report was read and accepted.

The next meeting in October will be held at Sanford, with Dr. Melvin Bacon, as Chairman of the committee.

Drs. Paul S. Hill, Jr., and Kenneth J. Cuneo are the committee to plan a summer meeting.

C. W. KINGHORN, M. D.,
*Secretary.*

# NEWS AND NOTES

### The Maine Radiological Society

A meeting of Maine Radiologists was held in Augusta on April 26, 1950. At this meeting a vote was taken to organize The Maine Radiological Society. Temporary Chairman is Forrest B. Ames, M. D., of Bangor, and the temporary Secretary is Joseph B. Stull, M. D., of Bangor. At the annual meeting of the Maine Medical Association in June it is planned to complete formal organization and also hold an informal clinic for discussion of cases to which are invited all members of the Maine Medical Association who are interested.

### Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

ORTHOPEDIC CLINICS

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

CARDIAC CLINICS

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

HARD-OF-HEARING CLINICS

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

PEDIATRIC CLINIC SCHEDULE — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

### Venereal Disease Clinics

The Department of Health and Welfare, Bureau of Health, maintains facilities for the diagnosis and treatment of venereal diseases in the following locations:

Augusta, Bangor, Bath, Belfast, Biddeford,
Lewiston, Portland, Rockland, Rumford,
Sanford, Waterville, Wilton and Winthrop.

Any physician wishing to refer an indigent person for diagnosis or treatment may obtain the name of the nearest clinic physician by contacting the Department of Health and Welfare, Bureau of Health, State House, Augusta, Maine. If no clinic facilities are available, physicians will be authorized to treat indigent patients in their offices. Authorization should be requested before treatment is started.

# COUNCILOR REPORTS

## First District

*To the Officers and Members of the Maine Medical Association:*

During the past year meetings of the York County Medical Society have been held every other month. Seven stated meetings of the Cumberland County Medical Society have been held, each preceded by a late afternoon clinic at one of the Portland hospitals. The Programs of these meetings have appeared in the JOURNAL as reports from county secretaries. The meetings have all been well attended and material presented by the speakers has been of more than average interest. Both Societies have been visited during the year by the President, who in each instance was the principal speaker, his subject being Federal Compulsory Health Insurance and the Maine Voluntary Plan.

Respectfully submitted,

EUGENE H. DRAKE, M. D.,
*Councilor, First District.*

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## Second District

*To the Officers and Members of the Maine Medical Association:*

I herewith summarize my activities as Councilor of Second District for the year 1949-1950, the high points of which were as follows:

Meeting of Councilors and Scientific Committee at summer residence of President Ralph Goodwin, M. D., at Orr's Island.

A meeting of the same group during the Fall Clinical Session at Waterville.

Attendance at the Oxford County Medical Society meeting at Bethel, Maine, and the Androscoggin County Medical Society meeting at Lewiston.

Owing to a misinterpretation of the notice sent me relative to the Franklin County Medical Society meeting, I failed to be present at that gathering.

Two important meetings of the Councilors were held at Augusta on April 5th and May 17th, respectively.

At all these meetings routine business pertinent to the welfare of the Maine Medical Association was transacted, with the specter of Socialization of Medical Practice claiming a conspicuous position on the agenda.

Respectfully submitted,

J. A. MACDOUGALL, M. D.,
*Councilor, Second District.*

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## Third District

*To the Officers and Members of the Maine Medical Association:*

The Councilor of the Third District reports the Medical affairs within the region under his jurisdiction to be proceeding as usual. No incidents call for review. His personal activities have been devoted chiefly to the formal meetings of the Council.

Respectfully submitted,

C. HAROLD JAMESON, M. D.,
*Councilor, Third District.*

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## Fifth District

*To the Officers and Members of the Maine Medical Association:*

Stated and regular meetings of the Hancock County Medical Society have been held from September through May of the current year. The Society generally is in good condition with a nucleus of 11 to 13 men who continue to be standbys and generally attend the meetings faithfully. The remainder of our membership attend none of our meetings, either locally or as far as the State is concerned, and it is with regret that we find so many dues-paying members who have no interest whatever in the local and State societies. We would be greatly pleased if all members would be more active than they are or have been over a period of many years.

There is no report for me to make as far as the Washington County Medical Society is concerned, as I have been informed of no meetings and am not aware of whether they are active or inactive, or if they have held meetings or not.

Respectfully submitted,

RAYMOND E. WEYMOUTH, M. D.,
*Councilor, Fifth District.*

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## Sixth District

*To the Officers and Members of the Maine Medical Association:*

It is a pleasure to submit my report on the three County Medical Associations which compose the Sixth Councilor District. All are healthy and active.

Aroostook County which covers an area nearly as large as the rest of the State had only three meetings. They have 45 members. The average attendance at their meetings was 50%. To any M. D. who would enjoy the "Southern Hospitality" of which we read I recommend, Go North to a meeting of the Aroostook County Medical Association.

The Penobscot County Medical Association has 82 active members. They held eight meetings. These meetings were all very instructive and were well attended, having an average attendance of better than 60%.

I must now with great modesty report the activities of the Piscataquis County Medical Association. Admittedly the best County Association in the State. Always the first to have its dues paid 100%. The first, and so far as I know the only Association, in which all members have signed up as participating physicians in the Prepaid Medical Care Plan. The Piscataquis County Medical Association is a small Association, only 14 members. (Emphasis strictly on quality.) They held four meetings with an average attendance of better than 80%.

Respectfully submitted,

N. H. NICKERSON, M. D.,
*Councilor, Sixth District.*

# COMMITTEE REPORTS

## STANDING COMMITTEES

### Committee on Medical Education and Hospitals

*To the Officers and Members of the Maine Medical Association:*

The Committee on Medical Education and Hospitals of the Maine Medical Association herein submits its annual report.

In recent years this committee has been relatively inactive. Since the annual meeting of the Maine Medical Association in 1949 a number of assignments have been received and two meetings have been held. One report was made to the Council at Augusta on April 5, 1950, and a second report will be made to the Council on June 18, 1950.

A proposed affiliation of the hospital of the Veterans Administration at Togus with the University of Vermont Medical School depended in part on the approval of this affiliation by the Maine Medical Association. This matter was investigated and it was recommended to the Council that such approval be granted. The Council has approved the affiliation.

The committee was asked to study hospital and physician relationships, in particular the method of compensation of physicians, especially radiologists, pathologists, and anesthetists, whose work is confined to the hospital. It was recommended that a special committee be appointed to meet with a committee of the Maine Hospital Association and make recommendations for the conduct of financial relationships between hospitals and physicians in this state. The Council rejected this recommendation for the reason that the principles involved in compensation of physicians by hospitals have already been stated in the House of Delegates of the American Medical Association and by the American Hospital Association in conjunction with national organization of the specialties named.

Out of the Piscataquis County Medical Society came the suggestion that more opportunities for medical education of Maine boys would be a prime factor in alleviating the shortage of physicians in this State. Several recommendations were made to the Council. The recommendations accepted were three. The first was that the committee should contact the deans of the Boston Medical Schools to inquire what might be done. The second was that the University of Vermont Medical School be asked to provide more places for Maine boys in return for approval of affiliation of that school with the hospital at Togus. The third was that the Maine legislature be asked to provide scholarship funds for needy medical students. There will be a further report on this matter at some future date.

A proposal that the Maine Medical Association investigate the Bingham Fund as it applies to Maine was made by one of this committee. The Council returned this assignment to the Committee which has already met with Dr. Samuel Proger, president of the Bingham Associates and with Dr. Brooks Ryder, the executive director of that body. A report of this meeting will be made to the Council on June 18, 1950.

Respectfully submitted,

RICHARD S. HAWKES, M. D.,
*Chairman.*

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### Committee on Public Relations

*To the President and Officers of the Maine Medical Association:*

The Committee on Public Relations begs leave to submit the following report:—

The controversial issue of Government-controlled Medicine has greatly emphasized the necessity of a Public Relations program to our profession. A large part of your Committee's activities have been concerned with endeavoring to acquaint the general public with the importance of preserving our system of medical care. To this end we have coöperated with the special committee on Public Education under the chairmanship of Doctor Vickers.

We have endeavored to develop a Speakers' Bureau who would be available for talks before various lay groups. While we have been able to meet all requests for speakers, actually we should have more of our own members prepared and ready for such assignments.

We have participated in the Maine Health Council in cooperation with the Maine Medical Association, the Maine Dental Association, the Maine Cancer Society, the Maine Tuberculosis Association, The Associated Hospital Service of Maine, the Maine Master Plumbers' Association and the State Department of Health and Welfare. This has been a worth while activity providing a clearing house for information and for publicity for all member organizations. The council recently has been reorganized and hence forth will function on a somewhat more economical basis but, it is expected with no loss in efficiency.

Your committee has been concerned with certain internal affairs of our association, hoping to correct some of the unfortunate impressions that, while usually exaggerated, have been more or less detrimental to the association and our public relations program. We refer, for example, to the not infrequent criticism in certain localities, of the difficulty in obtaining the services of a physician in emergency cases, or on holidays, or at night. We feel that usually this may be met by coöperation with the individual hospital, so that by some system of rotation the hospital may be able to provide emergency coverage. Also there has been some criticism that certain of our hospitals do not provide free professional service for the indigent. Correction of such matters will do a great deal toward developing a more favorable response to our own program.

Your committee has been active in developing a more effective relationship with the press, and with the radio. This already has shown results. A press room has been maintained at all State Association meetings with a member of the Committee in attendance. Releases to the press have been prepared in advance, in so far as possible, and we have tried to offer every assistance to the representatives of the Press. Similarly releases have been made available to the radio stations. At this time we wish to express our sincere appreciation to the Gentlemen of the Press and Radio who have uniformly been most coöperative and helpful.

Recommendations: — A comprehensive intelligent Public Relations program is very necessary for our Association. In further developing such a program your committee would make the following recommendations:—

(1) Continued efforts to expand our Speakers' Bureau, especially in certain areas not at present adequately covered.

(2) Continued participation in the Maine Health Council.

(3) Continuation of our Press and Radio relations program, with press rooms at all State meetings and releases, prepared in advance, on all speakers.

(4) Wider participation by our own members in the Voluntary Prepayment Health Insurance Plan developed by the Association. More active efforts to popularize the same.

(5) The formation of a Grievance Committee. This has been found very valuable in other States.

(6) Efforts to secure the passage in our next legislature of a resolution against The Administration's program of Socialized Medicine. This has already been accomplished in some twelve states.

(7) Delineation of the respective responsibilities of the Educational Committee and the Committee on Public

Relations to prevent overlapping. We feel that we should be largely concerned with over-all policies and that the Speakers' Bureau should be directly under the jurisdiction of the Educational Committee.

(8) Increased coöperation with the Maine Hospital Association and our individual hospitals. They are our staunchest and strongest "allies." Our objectives are similar, aimed at the preservation of the highest standards of Health service.

(9) Improved internal policies, aimed at making readily available, the best of professional services for our people. After all, good Public Relations are based upon good Personal Relations.

In closing we wish to express our appreciation to our Executive Secretary, W. Mayo Payson, who has been active in all the work of our Committee, to whom we have turned for advice and counsel, and whose unfailing energy and interest have made possible the program we have been endeavoring to develop.

Respectfully submitted,

Irving I. Goodof, M. D.,
Theodore C. Bramhall, M. D.,
Warren E. Kershner, M. D.,
M. Tieche Shelton, M. D.,
Frederick T. Hill, M. D.,
*Chairman.*

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### Cancer Committee

*To the Officers and Members of the Maine Medical Association:*

During the past year there has been a rather marked increase in the number of cancer patients in Maine. This is a rather discouraging situation. However, one must realize there has been a real program for early recognition. The attendance at the various Tumor Clinics has been steadily growing. This is largely due to the very excellent educational program of the Maine Cancer Society. Many patients are now appearing at the clinics for routine check-ups, and a considerable number of early cases have been identified. May we urge that this program be continued. Also, it is very possible in the near future to have more coöperation between the Maine Public Health Department, the Maine Cancer Society, and the Maine Medical Association Cancer Committee, and by doing this, our Cancer Control Program should be more workable.

Magnus F. Ridlon, M. D.,
*Chairman.*

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### Social Hygiene Committee

*To the Officers and Members of the Maine Medical Association:*

As Chairman of the Social Hygiene Committee, I must say that there has been no special meeting of its members.

It is gratifying to learn through the various reports from the State of Maine Department of Health and Welfare that there has been an actual decrease in the number of social diseases reported. I really believe social diseases are on the wane. At least in the Portland area there are fewer cases found on routine bloods from ward patients in recent years than in former years.

Respectfully submitted,

O. R. Johnson, M. D.,
*Chairman.*

## SPECIAL COMMITTEES

### Committee on Blood Transfusions

*To the Officers and Members of the Maine Medical Association:*

The Committee on Blood Transfusions has continued its efforts to establish a uniform system of operation among the existing blood banks throughout the state and has attempted to establish a set of standards and suggested procedures to be used as a guide for all physicians and institutions in this state who are participating in Blood Transfusion Programs.

In the 1949 committee report there were twenty-three suggestions regarding precautions to be taken in the selection of donors, in the testing of blood before administration to the recipient, in the choice of nourishment to be supplied to donors and in the use of a system to insure that the proper blood reaches the proper recipient.

It is the feeling of the committee that it is important to have a uniform system of recording transfusion reactions and that careful records should be kept of all reactions which follow the administration of whole blood, blood fractions or plasma. In order that comparable records may be kept by physicians and institutions in this state who are using whole blood or its derivatives the following outline is suggested for the classification of reactions and complications which may occur in Blood Transfusion Therapy:

I. Pyrogenic Reactions

(A) Reactions due to killed bacteria, bacterial products or other temperature-raising substances which usually occur as contaminants of the equipment.

(B) Reactions frequently seen in patients with leukemia due to the sensitivity of these patients to human plasma. (N.B. Such a sensitivity in leukemia patients can be demonstrated by the plasma provocative test or Dameshek which consists of the administration of twenty (20) cubic centimeters of human plasma to the patient. A pyrogenic response is indicative of such a sensitivity. Such patients may receive red cells from which the plasma has been removed without untoward reaction.)
N.B. The committee believes that pyrogenic reactions are preventable and are in the process of preparing a recommended procedure for the cleaning of transfusion apparatus.

II. Allergic Reactions

(A) Such reactions are manifested by urticaria, asthma, or other less obvious forms such as severe headaches. Angio-neurotic edema is a rather rare but potentially dangerous reaction which falls in this category. Serum sickness may occur five to twelve days after a transfusion.

III. Hemolytic or Incompatible Reactions

(A) Extravascular hemolysis.
This occurs from improper handling of the donor's blood before it is injected into the recipient. It may be due to freezing, overheating, improper storage, the addition of hypertonic or hypotonic solutions or to diffusion of dextrose.

(B) Intravascular hemolysis. May be of three categories.

1. Intravascular hemolysis or agglutination of incompatible donor cells.
   a. Incompatibility in A-B-O groups.
   b. Incompatibility in Rh groups.
2. Intravascular hemolysis or agglutination of recipient's cells.
   a. Distilled water intravenously.
   b. A, B, or AB recipients receiving O blood which contains high-titre anti-A or anti-B agglutinins.

3. Intravascular hemolysis of compatible donor cells.
   a. Increased osmotic fragility of donor's cells occurring during storage.
   b. Improper storage — too long or at too high temperatures.

IV. Circulatory Overloading
Due to excessive amounts of blood or excessive rates of administration, seen especially in severe anemias and chronic debilitating diseases.

V. Transmission of Disease
(A) Infectious Hepatitis.
(B) Malaria.
(C) Syphilis.
(D) Other diseases such as virus infections, Rickettsial diseases, and bacteria.

Less common complications which should be borne in mind by those responsible for transfusions are:

VI. Pulmonary Embolism — Due to fine threads of fibrin and gellike masses which may form in stored blood. Air embolism may also be a transfusion complication.

VII. Hyperpotassemia (Potassium overload).

VIII. Iron Overload

IX. Citrate Reaction
(A) Probably of importance only when citrated blood is used for transfusion of newborn babies. Characterized by the development of tetany.

X. Exsanguination
(A) A possible complication if patient is not watched, and the tubing from the flask becomes separated from the needle in the recipient's vein.

The Committee on Blood Transfusions suggests that a record be kept of all such reactions and complications following the transfusion of whole blood or its derivatives. As an aid in tracing the cause of an obscure transfusion reaction the committee has prepared an outline of investigation which may be used as a guide by transfusion personnel. A definitely organized pattern is essential if accurate conclusions are to be drawn. Every effort should be made to obtain immediate notification of reactions. Once the report of a reaction has been made it is the responsibility of the investigator to track down the cause.

A. Securing the Material.

The suspected blood bottle should immediately be acquired and returned to refrigerator storage until further investigation can be carried out. A fresh sample of blood should be obtained from the patient as soon as possible, with precautions to identify the patient and to accurately label the specimen as "No. 2." The original pilot tube used for grouping and cross-matching should be available. The committee believes such pilot tubes should automatically be held for at least two weeks after the blood transfusion has been given. The original pilot tube should be labelled "No. 1." These specimens should be retained at refrigerator temperature. Arrangements should also be made to obtain and measure total urine specimens for at least twenty-four hours or until the type of reaction has been diagnosed. Besides the routine tests the urine should be checked quantitatively for hemoglobin.

B. Securing of Clinical Data.

Clinical data should include complete details of the essential features of the reaction. It should include the name, hospital number, age, sex, room or bed number and address of the patient. His present illness and diagnosis should be recorded with special reference to chronic debilitating disease, severe anemias, leukemias, septicemias or other conditions which increase the tendency to reaction. It should also include operative procedures and post-operative diagnosis with notation of any unusual features including excessive loss of blood or shock. It is also important to obtain a complete history of previous transfusions with date, amount, and type of reaction, if any. Where applicable an outline of obstetrical history with possible isoimmunization should also be recorded.

The actual reaction should be described with reference to onset, course, severity and temperature, pulse, respiration and blood pressure before, during and after the reaction. The main symptoms to be observed are chills, anxiety, dyspnea, headache, nausea, vomiting, pruritus, precordial distress, pain in the back and pain in the legs. The main signs to be observed are sweating, restlessness, rigor, erythema, urticaria, bronchospasm, pallor, cyanosis, pulmonary edema, oliguria, anuria and jaundice.

Data should also be secured regarding the administration and handling of blood and the following questions should be answered: What was the method and rate of administration? What was the age of the blood? Was the bottle a full one? At what time was the blood taken from refrigeration? At what time was the transfusion commenced? When was the transfusion discontinued? How much blood was administered? Was the blood warmed or heated? Were other intravenous fluids or drugs concurrently administered? Were there any difficulties in performing the venapuncture? Was a disposable recipient set used? It is suggested that mimeographed forms be prepared with a questionnaire that can be readily filled in.

Part of the investigation involves the laboratory. In addition to the urinalysis tests for renal function and serial examinations of blood serum for free hemoglobin, methemoglobin and excess bilirubin, the investigation is essentially serological. It is important, however, that the blood in the suspected bottle be cultured both aerobically and anaerobically.

In addition to the above procedures the patient's blood group (A-B-O) and type (Rh) should be redetermined. The donor's blood group and type should be redetermined. The cross-matching of patient's and donor's blood should be repeated in both saline and albumin suspensions. The latter test should be done by the test-tube method with incubation for sixty minutes. Cross-matching should also be done on the minor agglutination. If incompatibility is determined it is desirable to identify the titre, nature and specificity of the agglutinin. If the ordinary A-B-O and Rh agglutinins are not found to be responsible, samples of patient's and donor's bloods may be sent to a consulting laboratory for the identification of other possible agglutinins. Titration of the patient's serum to determine the presence of immune isoagglutinins may be a useful method of implicating incompatibility.

When the clinical and laboratory data has been objectively collected a conference is desirable for the evaluation of the collected data. The attending physician should be invited to attend this conference. A final summary and assessment of the investigation should be appended to the patient's chart.

The committee wishes to recommend that the suggestions made in its 1949 report be incorporated with the suggestions presented in this report in pamphlet form and be distributed to each hospital and to each practicing physician in the State of Maine. It is suggested that the Bureau of Health be requested to aid in the publication of this material.

During the year the committee has made a number of inquiries regarding the establishment of new banks in areas not now adequately covered by existing blood banks. The response has been almost unanimous that the smaller communities can best be served by using a "walking blood bank" of donors who have been typed and placed on a donor's list and who can be called when blood is needed.

The American Blood Bank Association has requested that an effort be made to obtain the endorsement of its purposes and methods by each State Medical Association. The committee recommends that the purposes of the American Blood Bank Association as expressed in Article III of the constitution of said Association be endorsed by the Maine Medical Association. Article III is hereby quoted in full:

"The purposes of this association shall be:

1. To promote and foster the exchange of ideas and materials and the dissemination of information relating to Blood Banking and its technical methodology by education, publicity and research.

2. To foster and plan for coöperation in times of disaster.
3. To function as a clearing house on questions relating to the training of personnel common to such institutions.
4. To keep currently aware of and encourage high standards of service.
5. And to promote and foster and aid and encourage the extension of similar services throughout the United States and its territorities."

A resolution to be placed before the House of Delegates of the Maine Medical Association is enclosed with this report.

Respectfully submitted,

RICHARD C. WADSWORTH, M. D., Bangor, *Chairman,*
JOSEPH E. PORTER, M. D., Portland,
GILBERT CLAPPERTON, M. D., Lewiston,
JOHN F. REYNOLDS, M. D., Waterville,
JOSEPH A. DONOVAN, M. D., Houlton.

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RESOLUTIONS CONCERNING ENDORSEMENT OF AMERICAN ASSOCIATION OF BLOOD BANKS

Whereas, the Maine Medical Association is aware of the dangers, technicalities, and complexities, involved in the procurement and processing and transfusion of blood, including such problems as incompatibilities, the danger of transferring various diseases, all of which are a part of blood banking, and

Whereas, these problems require handling by competent persons in non-profit institutions, either controlled or sponsored by organized medicine, as represented by county medical societies, and

Whereas, blood banking is a highly-specialized branch of medicine, requiring close relationship between patient and physician, and

Whereas, this relationship and the scientific service and research necessary to maintain blood banking on a high level cannot be achieved if research is dominated by or directed by any national agency with political control, and

Whereas, it has been brought to the attention of this association that on November 19, 1947, the American Association of Blood Banks was formed, and

Whereas, the purposes of the American Association of Blood Banks are:

(1) To promote and foster the exchange of ideas and materials, and the dissemination of information relating to blood banking and its technical methodology by education, publicity, and research.

(2) To foster and plan for coöperation in times of disaster.

(3) To function as a clearing house in questions relating to the training of personnel common to such institutions.

(4) To keep currently aware of and encourage high standards of service.

(5) To promote, foster, and aid and encourage the extension of similar services throughout the United States and its territories.

Therefore, be it resolved that the Maine Medical Association endorse the purposes of the American Association of Blood Banks, and second, that this association urge the county medical societies of this state to aid and encourage the establishment of adequate transfusion services and the extension of already available blood bank services in this state.

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## Committee on Emergency Civilian Medical Defense

*To the Officers and Members of the Maine Medical Association:*

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association is a special committee created first in May, 1948, by Dr. Stephen Cobb of Sanford, when he was president of the Maine Medical Association. He named the following members of the Association to this committee: Charles W. Steele, M. D., Chairman; Ralph A. Getchell, M. D.; and Harry Butler, M. D. In June, 1948, Dr. Forrest Ames, and in June, 1949, Dr. Ralph Goodwin continued this special committee and renamed the same three members to serve again on it.

The members of this special committee devoted much thought and considerable time to study of the various problems associated with the medical aspects of Civil Defense and Public Safety Planning at the state and local levels. A meeting of this special committee was held in June and again in October, 1949, at which meetings it was possible to work out the details for the recommendations that the Committee on Emergency Civilian Medical Defense of the Maine Medical Association presented to the President, to the Council and to the House of Delegates of the Maine Medical Association at the Fall Clinical Session at Waterville on the 6th of November, 1949. These recommendations were accepted by Dr. Ralph Goodwin, President of the Association and approved by the House of Delegates of the Maine Medical Association. The Council of the Maine Medical Association studied these recommendations and voted approval of them at a meeting on the first of February, 1950; and the Council further voted to authorize the Secretary of the Maine Medical Association to send out copies of these recommendations to the president and to the secretary of each County Medical Society and to the president of the Active Staff of each general hospital within this State with a request that appropriate action be taken on these recommendations. These recommendations are under consideration by the County Medical Societies and by the general hospitals within the State; and some have already taken appropriate action while others are expected to do so in the very near future.

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association was also authorized by the Council to publish a series of educational articles dealing with the various aspects of Civil Defense and Public Safety. Thus far one article entitled "What Every Maine Doctor Should Know About Civil Defense and Public Safety Planning" has already been published in the March, 1950, issue of the JOURNAL OF THE MAINE MEDICAL ASSOCIATION.

Two more articles have been written and have been accepted for publication by the JOURNAL OF THE MAINE MEDICAL ASSOCIATION and will appear in early issues of this publication. These articles will appear under the titles of: 1) "What Every Maine Doctor Should Know About Atomic Weapons and Atomic Warfare," and 2) "What Every Maine Doctor Should Know About Defense Against the Atomic Bomb."

The Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association was invited to take part in a round table discussion of Civil Defense and Public Safety Planning which was part of a Military Medical Symposium held at Headquarters of the First Army at Governor's Island, N. Y., on 26-28 April, 1950. The subject assigned to the Chairman of your Committee was: "The Progress of Civil Defense and Public Safety Planning in Maine."

The Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association attended the semi-annual meeting of the "Council on National Emergency Medical Care" of the American Medical Association held in Chicago, Illinois, on 6 May, 1950, where he again took part in a round table discussion with his assignment a presentation of the progress made in Civil Defense and Public Safety Planning in Maine. Approximately 400 copies of the article entitled: "What Every Maine Doctor Should Know About Civil Defense and Public Safety Planning" were sent to Chicago for distribution to persons interested in Civil Defense and Public Safety Planning throughout the United States, another 300 copies were distributed to Reservists and other persons attending the Military Medical Symposium on 26 April, 1950, 50 copies were requested by the Medical Society of the State of Pennsylvania and 100 copies were requested by the Civil Defense and Public Safety Director for the State of Maine.

The Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association has maintained a close liaison with the State Civil Defense and Public Safety Director and the Committee has worked in close cooperation with the Civil Defense and Public Safety Director, Colonel Spaulding Bisbee. At the latter's request, the Committee on Emergency Civilian Medical Defense was asked to nominate two qualified doctors for assignment to each of the four Mobile Emergency Battalions which are in the process of formation now in Maine. The names of the doctors recommended for these assignments are as follows:

*Augusta* — Thomas F. Fay, M. D., and Howard H. Milliken, M. D.

*Bangor* — Samuel S. Silsby, M. D., and Dexter J. Clough, 2nd, M. D.

*Lewiston-Auburn* — Wedgewood P. Webber, M .D., and George B. O'Connell, M. D.

*Portland* — Isaac M. Webber, M. D., and William L. Casey, M. D.

These recommendations have been approved by Colonel Spaulding Bisbee and these doctors have received appointments by the Governor who has commissioned them as majors in the State Civil Defense Organization.

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association was requested by the State Civil Defense and Public Safety Director to nominate a qualified doctor to attend the course on "Defense Against the Atomic Bomb" conducted at the AEC Laboratory in Rochester, New York, by the Atomic Energy Commission. The Committee selected Dr. Clarke Miller, Radiologist at the Central Maine General Hospital, and he attended this important course in March, 1950; and he will present the data he was given there in Rochester to the County Medical Societies when requested by the various societies. He has talked at the County meetings of the Androscoggin and York County Medical Societies to date.

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association was enlarged, at the request of the original committee members, to include one member from each of the six Council Districts and to include two more members at large, one of which was a radiologist and the other a former Medical Director of the State Department of Public Health. The names of the newly assigned members are listed as follows:

1st District — Albert W. Moulton, M. D., Portland.

2nd District — Garfield G. Defoe, M. D., Dixfield.

3rd District — Frederick C. Dennison, M. D., Thomaston.

4th District — Harold E. Small, M. D., Augusta.

5th District — M. Allan Torrey, M. D., Ellsworth.

6th District — John B. Thompson, M. D., Bangor.

Members at large:

Roscoe L. Mitchell, M. D., Hallowell.

Clarke F. Miller, M. D., Auburn.

The Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association has met with David H. Stephen, Commissioner of the Department of Health and Welfare for the State of Maine, and the role of the State Department of Health in Civil Defense and Public Safety Planning was discussed. It was decided that Commissioner Stephen would prepare a roster of the personnel now assigned to various public health duties throughout the State and that he would indicate the public health facilities which were normally available throughout the State and which could, of course, be expected to take over certain of the preventive medicine and public health aspects of emergency medical care in event of a serious disaster within the State. He has agreed to furnish copies of this data to Colonel Spaulding Bisbee, the State Civil Defense and Public Safety Director and to the Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association.

Dr. Roscoe Mitchell, the preventive medicine and public health expert on the Committee of Emergency Civilian Medical Defense of the Maine Medical Association, has agreed to contact the various key personnel within the Department of Health and Welfare, Bureau of Health at Augusta with a view to working out plans for the duty assignments, which the State of Maine Department of Health and Welfare could be expected to carry out in event of a disaster within the State. The Committee on Emergency Civilian Medical Defense feels the responsibility for mass immunization, food inspection, sanitation and the prevention of epidemics in event of a major disaster within the State should be rightly that of the Department of Health and Welfare, Bureau of Health; and the Committee feels that duty assignments and responsibilities should be carefully clarified and the activities of the Department of Health and Welfare carefully coördinated with the other phases of Civil Defense and Public Safety Planning.

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association has been in contact with the Committee on Emergency Civilian Medical Care of the Maine Hospital Association and the members of the latter committee were invited to attend the May 21, 1950, meeting at Augusta with a view to keeping this committee familiar with the advancements which have been made along the lines of providing Emergency Medical Care in case of a Civil Disaster within the State.

The Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association has also had correspondence with the various representatives of the Registered Nurses' Association for the State of Maine and representatives of the nursing districts in Maine. Representatives of the Maine Registered Nurses Association were invited to attend the meeting held in Augusta on 21 May, 1950. It is hoped that the President will soon appoint a committee on Emergency Civilian Medical Care of the Maine Registered Nurses' Association.

This enlarged Committee held one meeting at Augusta on 21 May, 1950. The group was addressed by Colonel Spaulding Bisbee, the State Civil Defense and Public Safety Director; and Dr. Clarke Miller presented some of the data he obtained about atomic bombing and atomic warfare at Rochester at the AEC Laboratory this spring. Then, the Chairman reported on the two meetings he had attended; and some of the problems confronting the planners for Civil Defense and Public Safety at the state and local levels were discussed.

The Committee on Emergency Civilian Medical Defense of the Maine Medical Association plans to hold its final meeting on Sunday, 18 June, 1950, at the Poland Spring House in Poland, Maine. The members of the Committee feel that much progress has been made in regard to the Medical Aspects of Civil Defense and Public Safety Planning during these past twelve months. Of course, it is recognized that much more work must be done before the planning is completed and before the organization charged with providing adequate Civil Defense and Public Safety for the citizens of this State will have been perfected and before those assigned to do specialized disaster work will have become proficient enough to perform their duties efficiently in event of a large disaster within part or all of this State of Maine.

Respectfully submitted,

CHARLES W. STEELE, M. D., *Chairman*,
Committee on Emergency Civilian Medical
Defense of the Maine Medical Association.

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## Rural Health Committee

*To the Officers and Members of the Maine Medical Association:*

The Rural Health Committee held its first meeting for the year at the Elmwood Hotel in Waterville in November, 1949, during the Midyear Clinical Session. Dr. Norman Gardner of Connecticut, who is Chairman for this region of the National Rural Health Committee, AMA, was present. Dr. Gardner was most helpful and described to the Committee members some activities in rural health by other states. The survey of rural health activities in Connecticut, through questionnaires, seemed to offer an avenue of approach.

A questionnaire was first sent to doctors practicing in rural areas in order to get an idea of the health services available or lacking from the professional viewpoint. A high percentage of doctors replied.

In preparing a questionnaire for laymen who would be interested in health measures and facilities, aid was asked of the State Department of Health and Welfare, which includes the State Bureau of Health. From correspondence and a conference of your Chairman of the Rural Health Committee with that Department, it was learned that a great deal of the information which would have been sought by the questionnaire is already available in the files of the Department.

At a meeting in Augusta with officials of the Department of Health and Welfare it was brought to the attention of your Committee that it would be highly desirable if it could be determined just where undesirable socialized medicine and undesirable government control of medical matters begins and where the proper functions of public health work ends.

A second meeting of your Committee was held on April 5th and Mr. Wells of the Maine Public Health Association met with us. Again the desirability of establishing basic minimum local public health units as a rural health measure was emphasized. Such a program was recommended by the National Rural Health Committee of AMA and your Committee in its report two years ago adopted that recommendation.

As you know, at present, local public health services are a part of the function and expense of the individual towns and cities. Such small population groups are wholly unable economically to support an adequate program. In fact, experts estimate that a governmental unit (city or district) of 50,000 population or more is necessary for the support of a minimum public health service. There is only one city in Maine that has that population.

Two activities are necessary if any progress is to be made in this field: (1) determination of what groupings of municipalities, or even counties, would make the best setup for public health services; and (2) legislation to permit the forming of such units into districts. The National Rural Health Committee has recommended that state medical societies sponsor enabling legislation similar to that of Florida, Illinois or Mississippi for this purpose.

Your Committee is aware that this project goes well beyond the field of rural health, and, therefore, calls it to the attention of the Association as a matter that may call for the creation of a new committee. We believe that this is work in which the Maine Medical Association should show real leadership and that, in coöperation with the Department of Health and Welfare, which is interested, real effort should be made to work out the solution.

Respectfully submitted,

NORMAN H. NICKERSON, *Chairman,*
For the Committee.

## Committee on Conservation of Vision

*To the Officers and Members of the Maine Medical Association:*

The Conservation of Vision Committee met at the last Poland Spring meeting, in June, 1949.

There was no particular business to carry on excepting to follow in an advisory capacity with the Health and Welfare Department which we have been able to do throughout the state.

We have assisted in the programs of clinics, examinations of groups, etc., that they have asked us to do and also served in an advisory capacity.

The Committee also is handling the program for the eye men at the coming meeting at Poland Spring and another business meeting will be held at that time.

Respectfully submitted,

HOWARD F. HILL, M. D.,
*Chairman.*

## Tuberculosis Committee

*To the Officers and Members of the Maine Medical Association:*

The Tuberculosis Committee was able to get together for one meeting on March 6, 1950. At this meeting, Dr. Langdon T. Thaxter gave us an outline on the methods used in obtaining chest X-rays on all admissions at the Maine General Hospital. This was followed by a general discussion on tuberculosis case findings. The Committee felt that this was a very important phase of the work and should be adopted by all hospitals in Maine. It is estimated that some 80% of the population, at some time or other, enter the general hospitals.

Dr. Fisher was unable to be present at this meeting, but at some future date, I hope we can get a comparative figure on cost per case found by this method and that used by the general surveys as conducted by the State Department of Health.

Respectfully submitted,

LOREN F. CARTER, M. D.,
*Chairman.*

## Health Insurance Committee

*To the Officers and Members of the Maine Medical Association:*

During the past year policies from additional insurance companies have been reviewed by the Health Insurance Committee and at present fourteen insurance companies have been approved as participants in the Maine Medical Care Plan. Several group policies have been sold under the plan, the most recent a policy which covers employees of the Bath Iron Works and was written to include hospital, disability, and life insurance as well as surgical and obstetrical benefits by the Maine Plan. The April meeting of the Committee was attended by representatives of the Bath Iron Works, who requested information in ruling regarding operation and administration of the Plan.

The February meeting of the Committee was given over to representatives of the John Hancock Life Insurance Company, who had plans for a vigorous selling campaign in Maine. A group of 15 persons of this company is now engaged in a sales drive to extend the Maine Plan to unemployed groups in the State.

The present percentage of members of the Maine Medical Association who have filed acceptances as participants in the Plan is 63.1%.

Respectfully submitted,

EUGENE H. DRAKE, M. D.,
*Chairman.*

## Committee on Education Campaign

*To the Officers and Members of the Maine Medical Association:*

Your Committee for this State on Education Campaign consists of 52 members, including two members from the Dental Society and two pharmacists. These men are scattered over the State geographically and each County has at least two members.

The work of the different groups within the Committee has been divided generally along three lines. The most laborious and thankless job has been that of getting pamphlets and fliers in offices and out to the public. In order to speed up this work we have asked Whitaker & Baxter to send this material direct to designated County representatives throughout the State instead of shipping to the executive offices in Portland and having to reship from there. Thousands upon thousands of copies of this material has been put out. A large copy of the picture "The Doctor" has been made available to every hospital in the State.

Somewhat in line with this, we have on the Committee members who can be and have been alerted to write to their Congressmen and Senators when it has been desirable to let them know our views on pending legislation. In order to keep these key men informed we got Dr. Lawrence (our Washington representative) to send his Bulletins direct to them.

The Speakers' Bureau was a "must." It was necessary to have men in every part of the State prepared and willing to give the true story on Socialized Medicine. We asked every County Society to get some men who would undertake this task and we made up a list of 47 speakers. Briefing sessions were held in Bangor, Lewiston, Waterville, and Portland, where discussions were held on the effective arguments that can be used.

When the list of speakers was available, letters went out to all the Service Clubs in the State telling them of these speakers and urging that they be invited to talk. Just how many talks have been given by the Bureau I have not attempted to record because I believe President Goodwin will use that materail. We are trying to augment our list of speakers, particularly in three Counties, and propose next to circularize the Granges. This work must go on through the summer to be prepared for the political challenge in the fall elections.

The resolutions work has not been so successful although we have obtained some organized protests against Socialized Medicine. At this moment, however, this work is going forward; a representative of Whitaker & Baxter, with our Executive Secretary, is calling on the officers of eleven organizations, national in scope, in hopes that their state groups may be brought to adopt remonstrances against Socialized Medicine.

Respectfully submitted,

MARTYN A. VICKERS, M. D., *Chairman,*
For the Committee.

## Medical Advisory Committee of the Maine Arthritis and Rheumatism Foundation

*To the Officers and Members of the Maine Medical Association:*

The committee met on the 5th of February, at the Elmwood Hotel, Waterville. The following committee members were present: Drs. Richard Hawkes, Charles Steele, Robert Frost, Edward Asherman, Robert Kellogg, John Piper, and ten doctors from Waterville were guests.

The proposed plans for Arthritis clinics as presented to us by the Medical and Scientific Advisory Committee of the New England Arthritis and Rheumatism Foundation were discussed. It was decided that it was not at present feasible to start Arthritic clinics at any hospitals except in Portland and Bangor.

It was decided that the clinic at the Maine General Hospital be put in immediate operation. It is to meet on the 3rd Monday of each month at 9.00 a. m.

The possibility of establishing a clinic at the Eastern Maine General Hospital was to be explored by Dr. Robert Kellogg. A report on his findings was to be presented at a later date.

Dr. Steele was asked to contact Dr. Hans Waine, executive director of the New England Arthritis and Rheumatism Foundation, concerning a contract for partial payment of diagnostic and treatment fees incurred by indigent patients. This contract was to be drawn up and signed by the participating hospital and the New England Arthritis and Rheumatism Foundation.

Dr. Hawkes was asked to formulate a statement to the Medical profession concerning the Arthritic clinics. This to appear in the MAINE MEDICAL JOURNAL.

The question of the amount and type of publicity the clinics should have was raised. It was decided to proceed slowly and not to make any public statements until the clinics were functioning smoothly.

PHILIP P. THOMPSON, JR., M. D.,
*Chairman.*

## Diabetes Committee

*To the Officers and Members of the Maine Medical Association:*

In January of this year, a Diabetes Committee was formed through the efforts of Dr. Ralph A. Goodwin, President of the Maine Medical Association. It was Dr. Goodwin's wise decision that an attempt should be made to have all parts of the state represented and accordingly the following members were appointed:

E. R. Blaisdell, M. D., Portland
C. W. Capron, M. D., Calais
F. B. Champlin, M. D., Waterville
G. H. Donahue, M. D., Presque Isle
L. O. Warren, M. D., Brewer
C. W. Steele, M. D., Lewiston

During the past two years the American Diabetes Association has sponsored a Diabetes Detection Drive beginning with Diabetes Week which is in the early fall. This drive is under the auspices of the state and county medical societies and with the aid of the local hospitals and family physicians, an effort is being made to discover the one million undiagnosed diabetics.

Hospitals and physicians are supplied with material for examining urines prior to and during Diabetes Detection Week. The press and radio have coöperated in asking everyone during Diabetic Week, to send their urine either to their family physician or to a hospital for examination. Any patient bringing their specimen to a hospital is asked for the name of his family physician to whom the report is sent.

The 1950 Diabetic Week will be November 12-18 and the Committee feels that the members of our state and local medical societies will assist the 1950-51 Committee in every way to make our first Diabetes Detection Drive a big success in Maine.

Respectfully submitted,

E. R. BLAISDELL, M. D.,
*Chairman.*

## Veterans' Affairs Committee

*To the Officers and Members of the Maine Medical Association:*

Inasmuch as the Veterans' Administration is in what might be called a state of "flux," detailed information as to recent changes is not in the hands of your committee at the present time. Inasmuch as we have not had a meeting for some time due to increased work, conditions of roads and such, I have personally (and I might add at my own expense) contacted each member of your committee by phone for any suggestions or omissions in this report. To be sure there are omissions, but these are of the type which bring in personalities, politics, and other such devices as you all know and are well aware

There are, however, certain rules to be followed and certain of these rules we do not think that are clear to the members of this association.

1. Writing prescriptions without authorization to treat the individual concerned. In such cases the doctor will be billed for the same. In one case that I personally know about the doctor was charged eighty dollars because of this error. This might be called routine. In emergency cases, 72 hours may elapse before requesting these prescriptions, for service disabilities *only*.
2. In regard to hospitalization — the nearest VA office should be notified immediately. This applies to service connected disabilities *only*. Here again this may go back 72 hours for such services if deemed emergencies.
3. Get your slips for the next month's treatment in, on, or before the 19th of the proceeding month.
4. Do not order selective diagnoses, such as bronchoscopies, electrocardiograms when the veteran lives miles

*Continued on page 234*

# Program

## 96th ANNUAL SESSION
## MAINE MEDICAL ASSOCIATION

JUNE 18, 19, 20, 1950 — POLAND SPRING HOUSE

POLAND SPRING, MAINE

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*Program Arranged by the Scientific Committee*



CARL E. RICHARDS, M. D.,
*Chairman*

## INFORMATION

**Registration:**

Sunday: 2.00 P. M. to 6.00 P. M.

Monday and Tuesday: 8.30 A. M. to 6.00 P. M.

Registration headquarters will be in the Lobby of the Poland Spring House. Every member and guest is requested to register and receive a badge on arrival.

**Papers:**

All papers read before this Association shall be its property for publication in "The Journal of the Maine Medical Association," and when read shall be deposited with the Secretary, Dr. Frederick R. Carter.

The time allowed for the presentation of papers will be strictly observed.

**Visiting Delegates:**

Introduction of Visiting Delegates will take place Monday afternoon, June 19th, at 4.30 P. M.

**Meeting Places:**

Consult Bulletin Board.

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## SUNDAY, JUNE 18, 1950

### 3.00 P. M.

First Meeting of the House of Delegates

Foster C. Small, M. D., President-elect, presiding

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### 7.00 P. M.

Dinner

Speaker—To be announced

Quartet—The Four Keys

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## MONDAY, JUNE 19, 1950

### 9.00 A. M.

Movies

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### 9.30 A. M.

General Assembly:

Presiding: Ralph A. Goodwin, M. D., President

Announcements:

Carl E. Richards, M. D., Chairman, Scientific Committee

Frederick R. Carter, M. D., Secretary

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### 10.00 A. M.-12.00 Noon

General Session:

Franklin F. Ferguson, M. D., Portland, Chairman

Speakers:

Lloyd Brown, M. D., Bangor — The Place of Surgery in Pulmonary Tuberculosis

Emerson H. Drake, M. D., Portland — Surgery of Esophagus and Upper Stomach

James Marvin Baty, M. D., Professor of Pediatrics, Tufts Medical School, Physician-in-Chief, Boston Floating Hospital

Subject: Emotional Factors in Childhood Diseases

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### 12.30 P. M.

Luncheon

### 12.30 P. M.-2.30 P. M.

Luncheon Meetings:

1. Presidents and Secretaries of County Medical Societies in Banquet Room

   Ralf Martin, M. D., Portland, Chairman

   Speaker:

   Joseph H. Howard, M. D., Bridgeport, Conn., Past President, Connecticut State Medical Society; Past President, Conference of Presidents and Other Officers of the A. M. A.; Delegate to A. M. A.

2. Maine Radiological Society in Main Dining Room

   Forrest B. Ames, M. D., Chairman

   (Room for meeting to follow lunch to be announced)

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### 2.30 P. M.-4.30 P. M.

General Session:

Loring W. Pratt, M. D., Waterville, Chairman

Charles O. McCormick, M. D., Clinical Professor of Obstetrics, Indiana University School of Medicine

Subject: Obstetric Helps

William E. Brown, M. D., Boston, Mass., Clinical Professor of Surgery, Tufts Medical School

Subject: Diagnosis and Treatment of Hand Injuries

Kenneth Landauer, M. D., Director of Medical Care, National Foundation Infantile Paralysis

Subject: Poliomyelitis, Some Aspects of Current Concepts and Practics

Ralph A. Goodwin, M. D., Auburn, Maine

President's Address—Progress in American Medicine

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### 4.30 P. M.

Introduction of Visiting Delegates

Election of President-Elect

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### 5.00 P. M.

Second Meeting of the House of Delegates

Foster C. Small, M. D., President-Elect, presiding

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### 7.00 P. M.

Dinner

Speaker:

Mr. Leonard E. Read, President, The Foundation for Economic Education, Inc., Irvington-on-Hudson, N. Y.

Subject: Compulsory Collectivism

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## TUESDAY, JUNE 20, 1950

### 9.00 A. M.

Movies

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### 10.00 A. M.-12.00 Noon

General Session

Clement S. Dwyer, M. D., Bangor, Chairman

Joseph E. Porter, M. D., Jack Spencer, M. D., Elton R. Blaisdell, M. D., and Stanley E. Herrick, Jr., M. D., Portland, Maine*

* From the departments of Pathology, Roentgenology and Medicine, respectively, Maine General Hospital

Subject: Differential Diagnosis of Gastric Lesions from Cells Obtained by Stomach Aspirations

Louis Weinstein, M. D., Haynes Memorial Hospital, Brighton, Mass.
Subject: Antibiotic Treatment

Herbert E. Locke, Esq., Augusta
Subject: Medico-Legal Problems

Charles C. Lund, M. D., Assistant Clinical Professor of Surgery, Harvard Medical School
Subject: Home, Office and Hospital Management of Burns

Harry Blotner, M. D., Visiting Physician, Beth Israel Hospital, Boston, Mass.
Subject: Diabetic Deteetion

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**12.30 P. M.**

LUNCHEON

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**12.30 P. M.-2.30 P. M.**

LUNCHEON MEETINGS:

1. Diabetic Panel — Elton R. Blaisdell, M. D., Portland, Chairman
   a) Gerald H. Donahue, M. D., Presque Isle
   Diabetes in Children
   b) Frederic B. Champlin, M. D., Waterville
   Coronary Disease in the Diabetic
   c) Elton R. Blaisdell, M. D., Portland
   Treatment of Diabetic Coma
   d) Diseussion of proposed activities of the Maine Diabetes Detection Committee during Diabetic Week
2. Eye Panel — Howard F. Hill, M. D., Waterville, Chairman

Speaker: Maynard Wheeler, M. D.
Subject: The Handling of Strabismus in Children

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**2.30 P. M.-5.00 P. M.**

MEDICO-LEGAL SOCIETY:

Lt. Arthur S. Freeman, Maine State Police
Subjeet: Work of the State Police (illustrated by pictures)

James L. Reid, County Attorney
Subject: Getting Away with Murder in Maine

Judge Albert Beliveau
Subject: Relation of Law and Medicine in Criminal Cases

SPECIALTY CONFERENCES:

Ear, Nose and Throat, Loring W. Pratt, M. D., Waterville, Chairman

SYMPOSIUM ON DEAFNESS AND AURAL REHABILITATION

Paper: J. E. Whitworth, M. D., Bangor
Subject: Diagnosis of Deafness and Selection of Patients for Hearing Aid and Lip Reading Training

Paper: George Cummings, M. D., Portland
Subject: The Use of the Hearing Aid in Aural Rehabilitation

Paper: Merton N. Flanders, M. D., Lewiston
Subject: The Importance of a Properly Fitting Earmold in Aural Rehabilitation

Paper: Instruction of the Deafened Child in Lip Reading. Demonstration associated with this.
Speaker: Mrs. Koons
Speaker: Keyes D. Sanders, Superintendent, School for the Deaf, Portland
Subject: Function of the Maine School for the Deaf in Aural Rehabilitation

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Heart, Ralf Martin, M. D., Portland, Chairman
Wilfred J. Comeau, M. D., Bangor
Subject to be announced

Eugene H. Drake, M. D., and Ralf Martin, M. D., Portland
Subject: Anti-Coagulant Therapy, Actual or Threatened Mild Cardio-Infraction

Charles W. Steele, M. D., Lewiston
Subject: Anti-Diuretic Effect of Morphine, Demerol, and the Barbitrates

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**6.00 P. M.**

DUTCH TREAT COCKTAIL PARTY

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**7.00 P. M.**

ANNUAL BANQUET

Presentation of Fifty-Year Medals and Golf Prizes

Speakers:
Governor Frederick G. Payne
Charles F. Phillips, President, Bates College, Lewiston
Subject: A Positive Economic Program

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## Convention Rates

### Poland Spring House

### Poland Spring, Maine

The Convention Rates for the 1950 Annual Session are as follows:

Double room with twin beds and private bath — $12.00 per person per day.

Two double rooms with twin beds and connecting bath, or a double room and single room with connecting bath — $12.00 per person per day.

Single room with private bath—$14.00 per day.

Single or double room without bath — $10.00 per person per day.

Charge for non-registered guests for meals will be as follows:

| | |
|---|---|
| Breakfast | $1.50 |
| Luncheon | 3.00 |
| Dinner | 3.00 |
| Banquet | 4.00 |

**MAKE YOUR RESERVATIONS NOW!**

# PROGRAM

## Woman's Auxiliary

## to the

## Maine Medical Association

## Second Annual Convention, June 18, 19, 20, 1950

## Poland Spring House

## Poland Spring, Maine

The Woman's Auxiliary to the Maine Medical Association welcomes you. All guests of the Convention are cordially invited to attend all Social and Business Activities of the Woman's Auxiliary to the Maine Medical Association. If you desire to participate in extra social activities, please sign up for them at the registration desk.

### SUNDAY, JUNE 18, 1950

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| 3.00 P. M. to 6.00 P. M. | Registration |
| 7.00 P. M. | Dinner and Entertainment (Informal Dress) |

### MONDAY, JUNE 19, 1950

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|---|---|
| 9.00 A. M. to 6.00 P. M. | Registration |
| 10.00 A. M. | Golf Tournament and Putting Contest |
| 10.00 A. M. | Executive Board and Council Meeting |
| 12.30 P. M. | Lunch |
| 2.00 P. M. | Business meeting of the Woman's Auxiliary to the Maine Medical Association at Mansion House |
| 3.30 P. M. | Presentation of Presidents of New England Auxiliaries |
| 3.45 P. M. | Installation of new State Officers |
| 4.00 P. M. | Guest Speaker: Miss Mary McGinn of Chicago<br>Subject: Participation of the Woman's Auxiliary to the American Medical Association in the Whitaker-Baxter Campaign |
| 4.30 P. M. | Tea served at Mansion House |
| 7.00 P. M. | Dinner (Informal Dress) |

### TUESDAY, JUNE 20, 1950

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|---|---|
| 10.00 A. M. | Golf Tournament and Putting Contest |
| 12.30 P. M. | Lunch |
| 2.00 P. M. | Bridge, Canasta and Duplicate Bridge at the Mansion House, or Conducted Tour of Poland Spring Grounds |
| 7.00 P. M. | Banquet |

### Special Notices

If there are any changes in this program notices will be posted on the Bulletin Board in the Lobby.

Inquire at the Registration Desk and sign up, if you wish to participate in the following activities:

1. Boats may be rented from Mr. Hale for trips around the Lake.
2. The beach and boathouse are available for those who wish to swim.
3. In case of rain, games of Bingo will be set up for the guests.
4. Those desiring to visit antique shops will find them at Norway, Maine.

### Local Committee on Convention Arrangements

Mrs. Charles W. Steele — Honorary Chairman
Mrs. Otis Tibbetts — Chairman of General Arrangements

### Program Committee

Mrs. Vincent H. Beeaker, Chairman

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|---|---|
| Mrs. Wedgwood P. Webber | Mrs. Henry C. Thacher |
| Mrs. Gilbert Clapperton | Mrs. Frank P. Methot |
| Mrs. Bertrand A. Beliveau | Mrs. Frederic J. Caron |

# OFFICIAL DELEGATES — 1950

## County Medical Societies

### FIRST DISTRICT

**Cumberland County**

*Delegates:*
Ervin A. Center, M. D., Steep Falls
George I. Geer, Jr., M. D., Portland
Carl E. Dunham, M. D., Portland
James M. Parker, M. D., Portland
Eugene E. O'Donnell, M. D., Portland
Richard S. Hawkes, M. D., Portland
Joseph E. Porter, M. D., Portland

*Alternates:*
Charles R. Geer, M. D., Portland
George L. Maltby, M. D., Portland
John M. Bischoffberger, M. D., Naples
Maurice J. Dionne, M. D., Brunswick
Donald G. Wight, M. D., South Portland
G. E. C. Logan, M. D., Portland
Francis W. Hanlon, M. D., Portland
Eugene P. McManamy, M. D., Portland

**York County**

*Delegates:*
Paul S. Hill, Jr., M. D., Saco
Charles W. Kinghorn, M. D., Kittery
Kenneth J. Cuneo, M. D., Kennebunk

*Alternates:*
Walter D. Mazzacane, M. D., Old Orchard
Stephen A. Cobb, M. D., Sanford
Marion K. Moulton, M. D., West Newfield

### SECOND DISTRICT

**Androscoggin County**

*Delegates:*
Paul R. Chevalier, M. D., Lewiston
Wedgwood P. Webber, M. D., Lewiston
Daniel F. D. Russell, M. D., Leeds

*Alternates:*

**Franklin County**

*Delegate:*
Currier C. Weymouth, M. D., Farmington

*Alternate:*
George L. Pratt, M. D., Farmington

**Oxford County**

*Delegates:*
Walter G. Dixon, M. D., Norway
John A. Greene, M. D., Rumford

*Alternates:*
John A. Matheson, M. D., Bethel
Dexter E. Elsemore, M. D., Dixfield

### THIRD DISTRICT

**Knox County**

*Delegate:*
Wesley N. Wasgatt, M. D., Rockland

*Alternate:*
Frederick C. Dennison, M. D., Thomaston

**Lincoln-Sagadahoc Counties**

*Delegates:*
Robert W. Belknap, M. D., Damariscotta
Francis A. Winchenbach, M. D., Bath

*Alternates:*

### FOURTH DISTRICT

**Kennebec County**

*Delegates:*
Charles E. Towne, M. D., Waterville
Leon D. Herring, M. D., Winthrop
Frank B. Bull, M. D., Gardiner
William L. Gousse, M. D., Fairfield
Arch H. Morrell, M. D., Augusta

*Alternates:*
Kurt A. Sommerfeld, M. D., Gardiner
Kenneth W. Sewall, M. D., Waterville
Norman B. Murphy, M. D., Augusta
Aaron Cook, M. D., Waterville
John F. Reynolds, M. D., Waterville

**Somerset County**

*Delegate:*
George E. Sullivan, M. D., Bingham

*Alternate:*
Howard L. Reed, M. D., Skowhegan

**Waldo County**

*Delegate:*
John A. Caswell, M. D., Belfast

*Alternate:*
Ernest W. Stein, M. D., Stockton Springs

### FIFTH DISTRICT

**Hancock County**

*Delegate:*
James H. Crowe, M. D., Ellsworth

*Alternate:*
Harry Kopfmann, M. D., Deer Isle

**Washington County**

*Delegate:*
Norman E. Cobb, M. D., Calais

*Alternate:*

### SIXTH DISTRICT

**Aroostook County**

*Delegates:*
P. L. B. Ebbett, M. D., Houlton
Rosario A. Page, M. D., Caribou

*Alternates:*
Thomas G. Harvey, M. D., Fort Fairfield
Clyde I. Swett, M. D., Island Falls

**Penobscot County**

*Delegates:*
Herbert T. Clough, Jr., M. D., Bangor
John J. Pearson, Jr., M. D., Old Town
William A. Purinton, M. D., Bangor
George B. Weatherbee, M. D., Hampden Highlands

*Alternates:*
Forrest B. Ames, M. D., Bangor
Martyn A. Vickers, M. D., Bangor
Richard C. Wadsworth, M. D., Bangor

**Piscataquis County**

*Delegate:*
Ralph C. Stuart, M. D., Guilford

*Alternate:*
Guy E. Dore, M. D., Guilford

### Association Delegates to 1950 Annual Sessions

**American Medical Association**
Thomas A. Foster, M. D., Portland

**Connecticut State Medical Society**
M. Tieche Shelton, M. D., Augusta

**Massachusetts Medical Society**
James M. Parker, M. D., Portland

**Rhode Island Medical Society**
C. Harold Jameson, M. D., Rockland

**Vermont State Medical Society (1949)**
Frederick R. Carter, M. D., Portland

### Delegates from New England State Medical Societies

**Connecticut State Medical Society**
R. Starr Lampson, M. D., Hartford
Stanley B. Weld, M. D., Hartford

**Massachusetts Medical Society**

**New Hampshire Medical Society**

**Rhode Island Medical Society**
Charles L. Phillips, M. D., East Greenwich

**Vermont State Medical Society**

## SPECIAL NOTICES

### Fifty-Year Service Medals

Fifty-Year Service Medals will be presented to the following members Tuesday evening, June 20, at the Annual Banquet.

*Androscoggin County Medical Society*
**George H. Rand, M. D.**, Livermore Falls
Boston University School of Medicine, 1900

*Aroostook County Medical Society*
**Albert H. Damon, M. D.**, Limestone
Vermont Medical School, 1900
**Eugene H. Doble, M. D.**, Presque Isle
Baltimore School of Medicine, 1900

*Cumberland County Medical Society*
**Alfred W. Haskell, M. D.**, Portland
Bowdoin Medical School, 1900
**Samuel G. Sawyer, M. D.**, Cornish
Bowdoin Medical School, 1900

*Kennebec County Medical Society*
**George A. Coombs, M. D.**, Augusta
Bowdoin Medical School, 1900
**John G. Towne, M. D.**, Waterville
Baltimore School of Medicine, 1900

*Lincoln-Sagadahoc Medical Society*
**Edwin F. Pratt, M. D.**, Richmond
Bowdoin Medical School, 1900

*Oxford County Medical Society*
**Eugene M. McCarty, M. D.**, Rumford
Bowdoin Medical School, 1900

*Penobscot County Medical Society*
**Blanche M. Mansfield, M. D.**, Bangor
Women's Medical College of Philadelphia, 1900
**Luther S. Mason, M. D.**, Bangor
University of Pennsylvania Medical School, 1900

*York County Medical Society*
**Owen B. Head, M. D.**, Sanford
Bowdoin Medical School, 1900

### GOLF TOURNAMENT

Francis A. Winchenbach, M. D., will serve as Chairman of the Committee on Arrangements for the Golf Tournament. There will be prizes for members, ladies and guests.

## COMMERCIAL EXHIBITS

**Ayerst, McKenna & Harrison, Ltd., 22 East 40th Street, New York 17, N. Y.**

**Brewer & Company, Inc., 67 Union Street, Worcester 8, Mass.**
Representatives, Paul C. Barton, M. D., and Mr. Walter Spaulding

**Buffington's, Inc., Worcester 8, Mass.**
Representatives, Mr. F. F. Murphy and Mr. D. J. Ratte

**Burroughs Wellcome & Co., Inc., Tuckahoe 7, N. Y.**
Representatives, Mr. R. L. McQuillan and Mr. J. W. Rickards

**Elmer N. Blackwell, Surgical Appliances, 565 Congress St., Portland, Me.**
Representatives, Mr. Elmer Blackwell and Mr. Oakley R. Sanborn

**Ciba Pharmaceutical Products, Summit, N. J.**
Representatives, Mr. M. K. Ross and Mr. J. W. Slayter

**Davies, Rose & Company, Ltd., 22 Thayer Street, Boston 18, Mass.**
Representative, Mr. Frederick L. Moulton

**F. A. Davis Company, 1914-16 Cherry Street, Philadelphia 3, Pa.**
Representative, Mr. R. H. Richter

**DoHo Chemical Corporation, 100 Varick Street, New York 13, N. Y.**
Representative, Mr. Irving J. Hahn

**C. B. Fleet Company, 921-927 Commerce Street, Lynchburg, Va.**
Representative, Mr. Raymond S. Carman

**Geo. C. Frye Co., 116 Free Street, Portland, Me.**
Representatives, Mr. Milton S. Kimball, Mr. Hubert H. Honan, Mr. Sidney F. Cheney, Mr. Claude W. Lamson and Mr. Millard C. Webber, Jr.

**General Electric X-ray Corporation, 535 Commonwealth Avenue, Boston 15, Mass.**
Representatives, Mr. D. G. Hempstead, Mr. W. I. Brown and Mr. C. J. Haller.

**Lederle Laboratories Division, 30 Rockefeller Plaza, New York 20, N. Y.**
Representatives, Mr. Raymond F. Cardinal and Mr Rocco Maffei

**Eli Lilly & Company, Indianapolis 6, Indiana**
Representatives, Mr. J. F. Raleigh and Mr. G. R. Tadgell

**Maine Surgical Supply Co., 10 Longfellow Square, Portland, Me.**
Representatives, Mr. John H. Lacy, Mr. Richard Lund, Mr. Leo Curran and Mr. Carleton Haley

**M & R Dietetic Laboratories, Columbus 16, Ohio**
Representative, Mr. Charles E. Quinn

**E. F. Mahady Company, 851-859 Boylston Street, Boston 16, Mass.**
Representatives, Mr. Frank Bridge and Mr. Robert Stokinger

**Mead Johnson & Company, Evansville 21, Indiana**
Representative, Mr. H. C. Hallum

**Philip Morris & Co., Ltd., Inc., 100 Park Avenue, New York 17, N. Y.**
Research Director, Mr. W. F. Greenwald

**Picker X-ray Corporation, 300 Fourth Avenue, New York 10, N. Y.**
Representative, Mr. T. A. Ludwig

**A. H. Robins Co., Inc., Richmond, Virginia**
Representatives, Mr. David F. Kidney and Mr. Bernard J. McCarthy

**Sanborn Company, Cambridge 39, Mass.**
Representative, Mr. George A. Sanderson

**W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, Pa.**
Representative, Mr. Joseph Juneman

**Schering Corporation, 2 Broad Street, Bloomfield, N. J.**
Representatives, Mr. Herbert A. Lohrman and Mr. Michael Gannino

**Schenley Laboratories, Inc., 350 Fifth Avenue, New York 1, N. Y.**
Representatives, Mr. Al DeBoyes, Mr. Semple and Mr. Sutton

**G. D. Searle & Co., P. O. Box 5110, Chicago 80, Ill.**
Representative, Mr. John Pash

**Sherman Laboratories, 14600 East Jefferson Avenue, Detroit 15, Mich.**
Representatives, Mr. Vernon Keene and Mr. Carl Swadling

**E. R. Squibb & Sons, 745 Fifth Avenue, New York 22, N. Y.**
Mr. Harold Tonnessen, Manager, Professional Exhibits

**Surgeons' & Physicians' Supply Co., 761 Boylston Street, Boston 16, Mass.**
Representatives, Mr. Charles H. Joy and Mr. David T. Fenner

**Tailby-Nason Company, Boston, Mass.**
Representative, Mr. Halliday

**The Borden Company, 350 Madison Avenue, New York 17, N. Y.**
Representative, Mr. O. E. Ostberg

**The Coca-Cola Company, Atlanta 1, Georgia**

**The National Drug Company, Philadelphia 44, Pa.**
Representative, Mr. C. E. Lewis

**The P. J. Noyes Company, Lancaster, N. H.**
Representative, Mr. James L. Dow

**Thomas W. Reed Company, 533 Commonwealth Avenue, Boston, Mass.**
Representative, Mr. J. F. Walsh

**U. S. Vitamin Corporation, 250 East 43rd Street, New York 17, N. Y.**
Representatives, Mr. W. G. Moran, Jr., and Mr. Lewis M. Crocker

**Winthrop-Stearns, Inc., 170 Varick Street, New York 13, N. Y.**
Representatives, Mr. F. J. Coughlin, Mr. E. J. Adams and Mr. R. W. Blanchard

**Wyeth, Inc., 1600 Arch Street, Philadelphia 3, Pa.**
Representative, Mr. Ronald Macomber

*Veterans' Affairs Committee—Continued from page 226*

away and does not have time for such things before his train leaves. This requires a recall and a waste of money.

We are cognizant of the fact that there is a delay in getting veterans into Togus as well as getting them out in spite of the twenty dollar a day rate which was quoted in the newspapers the other day. Use your telephone to the nearest V. A. office open (branch offices are closed on Saturdays and Sundays) and reverse the charge when making a call concerning a veteran particularly if his or her disabilities are service connected.

Respectfully submitted,
HAROLD E. PRESSEY, Bangor, Maine, *Chairman*,
ELTON R. BLAISDELL, Portland, Maine,
CURRIER C. WEYMOUTH, Farmington, Maine,
FRANCIS A. WINCHENBACH, Bath, Maine,
EDWARD H. RISLEY, Waterville, Maine,
PHILIP O. GREGORY, Boothbay Harbor, Maine.

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## REPORT OF THE SECRETARY-TREASURER

*To the Officers and Members of the Maine Medical Association:*

There are 751 members in the Association; 657 Active; 55 Senior and 39 Honorary. Forty-six new members have been added to our roster during the past year. We have lost thirteen members by death, twenty-four have resigned or moved out of the State and nineteen have not paid their 1950 State dues.

We have received 100% payment of dues from nine of the fifteen county societies with Piscataquis County heading the list as it has for the past fifteen years.

The Fall Clinical Session was held in Waterville, November 6 and 7, 1949, with Dr. Frederick T. Hill in charge of the program. I want to take this opportunity to express my appreciation to the faculty of Colby College for the courtesies extended to the members of the Association during this session. Dr. Ralph J. Gampell, self exile from England's socialized medicine program, was the speaker at the opening session, Sunday evening, November 6th, in Roberts Union, Colby College. On Monday, November 7th, clinics were held at the Thayer Hospital, Sisters Hospital and Central Maine Sanatorium. Dr. William S. Clark of the Massachusetts General Hospital and Dr. Dwight E. Harkins of the Massachusetts Memorial Hospital were guest speakers at the dinner Monday evening.

An Interim Meeting of the House of Delegates was held November 6th, preceding the Clinical Session in Waterville, and a Special Meeting in Augusta, April 5, 1950. These meetings were held in accordance with a vote of the House of Delegates last June. Twenty-eight of the thirty-five official county delegates were present at the November meeting and thirty-three were present at the April meeting.

The Ninety-sixth annual session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring, Maine, June 18, 19, and 20. The program for this meeting, which has been arranged by Carl E. Richards, M. D., of Sanford, Chairman of the Scientific Committee, and members of his committee, is published elsewhere in this issue of the JOURNAL.

Fifty-Year Service Medals will be presented to the following members at the annual banquet Tuesday evening, June 20 by Ralph A. Goodwin, M. D., President; George H. Rand, M. D., Albert H. Damon, M. D., Eugene H. Doble, M. D., Alfred W. Haskell, M. D., Samuel G. Sawyer, M. D., George A. Coombs, M. D., John G. Towne, M. D., Edwin F. Pratt, M. D., Eugene M. McCarty, M. D., Blanche M. Mansfield, M. D., Luther S. Mason, M. D., and Owen B. Head, M. D.

Thirty-six companies have reserved Commercial Exhibit space for this session. I hope all members in attendance will visit these exhibits, and so express their appreciation to these companies who help make this meeting possible.

Four hundred and fifty-three members have paid their 1950 American Medical Association dues. I want to again call your attention to the fact that these dues must be paid to keep your membership in the A. M. A.

The books of the Association and JOURNAL were closed and audited, as of this date, by Jordan and Jordan, Accountants and Auditors, and were found to be complete and correct in all details of record. Their complete report will be published in the July issue of the JOURNAL, but a summarized Financial Statement and proposed Budget for 1950-1951 has been sent to the Officers, Councilors and County Delegates in ample time for study before the June meeting.

Respectfully submitted,
FREDERICK R. CARTER, M. D.,
*Secretary-Treasurer.*

May 31, 1950

# OFFICIAL ROSTER

# MAINE MEDICAL ASSOCIATION

PAST PRESIDENTS

MEMBERS

SENIOR MEMBERS

HONORARY MEMBERS

COUNTY AND ALPHABETICAL LISTING

*MAY 31, 1950*

# Past Presidents

## Maine Medical Association

| | |
|---|---|
| *Isaac Lincoln, M. D., Brunswick, | April-June, 1853 |
| *James McKeen, M. D., Topsham, | 1853-1854 |
| *Charles Millett, M. D., Lewiston, | 1854-1855 |
| *Joseph H. Estabrook, M. D., Camden, | 1855-1856 |
| *Hosea Rich, M. D., Bangor, | 1856-1857 |
| *Gilman Daveis, M. D., Portland, | 1857-1858 |
| *J. C. Bradbury, M. D., Old Town, | 1858-1859 |
| *H. H. Hill, M. D., Augusta, | 1859-1860 |
| *T. G. Stockbridge, M. D., Bath, | 1860-1861 |
| *H. M. Harlow, M. D., Augusta, | 1861-1862 |
| *Alonzo Garcelon, M. D., Lewiston, | 1862-1863 |
| *J. T. Gilman, M. D., Portland, | 1863-1864 |
| *N. P. Monroe, M. D., Belfast, | 1864-1865 |
| *Amos Nourse, M. D., Bath, | 1865-1866 |
| *S. H. Tewksbury, M. D., Portland, | 1866-1867 |
| *Cyrus Briggs, M. D., Augusta, | 1867-1868 |
| *I. T. Dana, M. D., Portland, | 1868-1869 |
| *D. McRuer, M. D., Bangor, | 1869-1870 |
| *B. F. Buxton, M. D., Warren, | 1870-1871 |
| *A. J. Fuller, M. D., Bath, | 1871-1872 |
| *A. P. Snow, M. D., Winthrop, | 1872-1873 |
| *A. F. Page, M. D., Bucksport, | 1873-1874 |
| *Thomas H. Brown, M. D., Paris, | 1874-1875 |
| *J. H. Bates, M. D., Yarmouth, | 1875-1876 |
| *E. F. Sanger, M. D., Bangor, | 1876-1877 |
| *T. H. Jewett, M. D., South Berwick, | 1877-1878 |
| *M. C. Wedgwood, M. D., Lewiston, | 1878-1879 |
| *S. C. Gordon, M. D., Portland, | 1879-1880 |
| *Wm. Warren Greene, M. D., Portland, | 1880-1881 |
| *A. K. P. Meserve, M. D., Buxton, | 1881-1882 |
| *George E. Brickett, M. D., Augusta, | 1882-1883 |
| *Oren A. Horr, M. D., Lewiston, | 1883-1884 |
| *Thomas A. Foster, M. D., Portland, | 1884-1885 |
| *Sumner Laughton, M. D., Bangor, | 1885-1886 |
| *J. B. Walker, M. D., Thomaston, | 1886-1887 |
| *Frederick C. Thayer, M. D., Waterville, | 1887-1888 |
| *Stephen H. Weeks, M. D., Portland, | 1888-1889 |
| *Benjamin F. Sturgis, M. D., Auburn, | 1889-1890 |
| *Samuel B. Hunter, M. D., Machias, | 1890-1891 |
| *Edwin M. Fuller, M. D., Bath, | 1891-1892 |
| *Alfred Mitchell, M. D., Brunswick, | 1892-1893 |
| *John A. Donovan, M. D., Lewiston, | 1893-1894 |
| *W. P. Giddings, M. D., Gardiner, | 1894-1895 |
| *Lewis W. Pendleton, M. D., Portland, | 1895-1896 |
| *D. A. Robinson, M. D., Bangor, | 1896-1897 |
| *Wallace K. Oakes, M. D., Auburn, | 1897-1898 |
| *Charles O. Hunt, M. D., Portland, | 1898-1899 |
| *Bigelow T. Sanborn, M. D., Augusta, | 1899-1900 |
| *Edward H. Hill, M. D., Lewiston, | 1900-1901 |
| *Frederic H. Gerrish, M. D., Portland, | 1901-1902 |
| *Hiram Hunt, M. D., Greenville, | 1902-1903 |
| *Augustus S. Thayer, M. D., Portland, | 1903-1904 |
| *F. L. Dixon, M. D., Lewiston, | 1904-1905 |
| *Randall D. Bibber, M. D., Bath, | 1905-1906 |
| *C. E. Williams, M. D., Auburn, | 1906-1907 |
| *B. B. Foster, M. D., Portland, | 1907-1908 |
| *Alfred D. Sawyer, M. D., Fort Fairfield, | 1908-1909 |
| *Galen M. Woodcock, M. D., Bangor, | 1909-1910 |
| *E. H. Bennett, M. D., Lubec, | 1910-1911 |
| *Stanley P. Warren, M. D., Portland, | 1911-1912 |
| *Ralph H. Marsh, M. D., Guilford, | 1912-1913 |
| *W. C. Peters, M. D., Bangor, | 1913-1914 |
| *H. L. Bartlett, M. D., Norway, | 1914-1915 |
| *Erastus E. Holt, M. D., Portland, | 1915-1916 |
| *W. F. Hart, M. D., Camden, | 1916-1917 |
| *James A. Spalding, M. D., Portland, | 1917-1918 |
| *George H. Coombs, M. D., Waldoboro, | 1918-1919 |
| *H. B. Mason, M. D., Calais, | 1919-1920 |
| *Theodore E. Hardy, M. D., Waterville, | 1920-1921 |
| *Addison S. Thayer, M. D., Portland, | 1921-1922 |
| *L. T. Snipe, M. D., Bath, | 1922-1923 |
| *C. A. Moulton, M. D., Hartland, | 1923-1924 |
| *F. W. Mann, M. D., Houlton, | 1924-1925 |
| *J. D. Phillips, M. D., Southwest Harbor, | 1925-1926 |
| *L. P. Gerrish, M. D., Lisbon Falls, | 1926-1927 |
| *N. M. Marshall, M. D., Portland, | 1927 (Died in Office) |
| *Herbert F. Twitchell, M. D., Portland, | 1927-1928 |
| *Frank Y. Gilbert, M. D., Portland, | 1928-1929 |
| Delbert M. Stewart, M. D., South Paris, | 1929-1930 |
| *Charles B. Sylvester, M. D., Portland, | 1930-1931 |
| Ernest V. Call, M. D., Lewiston, | 1931-1932 |
| *E. Delmont Merrill, M. D., Dover-Foxcroft, | 1932-1933 |
| Warren E. Kershner, M. D., Bath, | 1933-1934 |
| Edwin W. Gehring, M. D., Portland, | 1934-1935 |
| *John L. Johnson, M. D., Bangor, | 1935-1936 |
| Frederick T. Hill, M. D., Waterville, | 1936-1937 |
| *Ralph W. Wakefield, M. D., Bar Harbor, | 1937-1938 |
| Willard H. Bunker, M. D., Calais, | 1938-1939 |
| George L. Pratt, M. D., Farmington, | 1939-1940 |
| Thomas A. Foster, M. D., Portland, | 1940-1941 |
| P. L. B. Ebbett, M. D., Houlton, | 1941-1942 |
| Carl H. Stevens, M. D., Belfast, | 1942-1943 |
| Oscar F. Larson, M. D., Machias, | 1943-1944 |
| R. V. N. Bliss, M. D., Blue Hill, | 1944-1945 |
| Adam P. Leighton, M. D., Portland, | 1945-1946 |
| John O. Piper, M. D., Waterville, | 1946-1947 |
| Stephen A. Cobb, M. D., Sanford, | 1947-1948 |
| Forrest B. Ames, M. D., Bangor, | 1948-1949 |

* Deceased.

### ANDROSCOGGIN COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Anderson, Donald L., | 70 Pine St., Lewiston |
| Archambault, Philip L., | 75 Mill St., Auburn |
| Beeaker, Vincent H., | 85 Wood St., Lewiston |
| Beliveau, Bertrand A., | 56 Howe St., Lewiston |
| Beliveau, Romeo A., | 89 Pine St., Lewiston |
| Bernard, Romeo A., | 26 Beacon St., Lewiston |
| Bluhm, Samuel, | St. Mary's Hospital, Lewiston |
| Bousquet, Jean J., | 91 Bartlett St., Lewiston |
| Brien, Maurice, | 80 Pine St., Lewiston |
| Buker, Edson B., | 80 Goff St., Auburn |
| Busch, John J., | 105 Elm St., Mechanic Falls |
| Caron, Frederic J., | 174 Bates St., Lewiston |
| Cartland, John E., | 117 Goff St., Auburn |
| Cattley, Amy L., | 477 Main St., Lewiston |
| Chapin, Milan A., | 237 Turner St., Auburn |
| Chenery, Frederick L., Jr., | Monmouth |
| Chevalier, Paul R., | 355 Pine St., Lewiston |
| Clapp, Waldo A., | 215 College St., Lewiston |
| Clapperton, Gilbert, | 20 Ware St., Lewiston |
| Cox, William V., | 133 Court St., Auburn |
| DuMais, Alcid F., | 125 College St., Lewiston |
| Fahey, William J., | 17 Frye St., Lewiston |
| Fisher, Dean, | 300 Main St., Lewiston |
| Flanders, Merton N., | 344 Main St., Lewiston |
| Frost, Robert A., | 2 Goff St., Auburn |
| Gauvreau, Horace L., | 82 Pine St., Lewiston |
| Giguere, Eustache N., | 109 Cedar St., Lewiston |
| Goldman, Morris E., | 487 Main St., Lewiston |
| Goodwin, Ralph A., | 56 Denison St., Auburn |
| Grant, Alton L., Jr., | 133 Court St., Auburn |
| Greene, Merrill S. F., | 466 Main St., Lewiston |
| Gross, Leroy C., | 19 Goff St., Auburn |
| Haas, Rudolph, | 488 Main St., Lewiston |
| Harkins, Michael J., | 437 Main St., Lewiston |
| Higgins, Everett C., | 149 College St., Lewiston |
| Hirshler, Max, | 85 Pine St., Lewiston |
| James, Chakmakis, | 47 Howe St., Lewiston |
| Lynn, Geraldine, | 74 Pierce St., Lewiston |
| Mandelstam, Abe W., | 17 Wakefield St., Lewiston |
| Martel, Dominique A., | 460 Sabattus St., Lewiston |
| Methot, Frank P., | 256 Lisbon St., Lewiston |
| Miller, Clarke F., | 300 Main St., Lewiston |
| Miller, Hudson R., | 11 Turner St., Auburn |
| Morissette, Russell A., | 70 Pine St., Lewiston |
| Murphy, D. Jerome, | 126 College St., Lewiston |
| Nadeau, J. Paul, | 91 Pine St., Lewiston |
| O'Connell, George B., | 11 Lisbon St., Lewiston |
| Parent, Leslie, | 47 Orange St., Lewiston |
| Poulin, J. Emile, | 194 Lisbon St., Lewiston |
| Pratt, Harold S., | Livermore Falls |
| Rand, Carleton H., | 219 Oak St., Lewiston |

| | |
|---|---|
| Rock, Daniel A., | 477 Main St., Lewiston |
| Rowe, Gunthner H., | Livermore Falls |
| Roy, Leopold O., | 54 Pine St., Lewiston |
| Russell, Blinn W., | 98 Pine St., Lewiston |
| Spear, William, | Lisbon Falls |
| Starks, Pauline G., | 14 Lisbon St., Lewiston |
| Steele, Charles W., | 472 Main St., Lewiston |
| Sweatt, Linwood A., | 48 Drummond St., Auburn |
| Thacher, Henry C., | 11 Turner St., Auburn |
| Tibbetts, Otis B., | 33 Court St., Auburn |
| Tousignant, Camille, | 111 Pine St., Lewiston |
| Twaddle, Gard W., | 57 Goff St., Auburn |
| Ulpts, Reynold G. E., | 67 Webster St., Lewiston |
| Viles, Wallace E., | Turner |
| Webber, Wedgwood P., | 376 Main St., Lewiston |
| Williams, James A., | 10 Pleasant St., Mechanic Falls |

SENIOR MEMBERS

| | |
|---|---|
| Call, Ernest V., | 118 Pine St., Lewiston |
| Gottlieb, Julius, | 210 College St., Lewiston |
| Rand, George H., | Livermore Falls |
| Randall, Ray N., | 19 Sabattus St., Lewiston |
| Russell, Daniel F. D., | Leeds |
| Thomas, Camp C., | Greene |

HONORARY MEMBERS

| | |
|---|---|
| Hayden, Louis B., | Livermore Falls |
| Peaslee, Clarence C., | 42 Goff St., Auburn |
| Plummer, Albert W., | Lisbon Falls |
| Renwick, Ward J., | 102 Goff St., Auburn |
| Webber, Wallace E., | 297 Main St., Lewiston |

## AROOSTOOK COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Albert, Armand, | 193 Main St., Van Buren |
| Albert, Joseph L., | Fort Kent |
| Ascher, David S., | Patten |
| Aungst, Melvin R., | Eagle Lake |
| Berrie, Lloyd H., | Caribou |
| Boone, Storer W., | Presque Isle |
| Brown, Stephen S., | Mars Hill |
| Burr, Charles G., | Houlton |
| Carter, Loren F., | Presque Isle |
| Donahue, Clement L., | 22 Main St., Caribou |
| Donahue, Gerald H., | Presque Isle |
| Donovan, Joseph A., | Houlton |
| Ebbett, Penry L. B., | Houlton |
| Faucher, Francois J., | Grand Isle |
| Gagnon, Bernard H., | Houlton |
| Gormley, Eugene G., | Houlton |
| Graves, Robert A., | Fort Fairfield |
| Gregory, Frederick L., | 16 High St., Caribou |
| Griffiths, Eugene B., | Presque Isle |
| Harvey, Thomas G., | 164 Main St., Fort Fairfield |
| Hogan, Chester F., | Houlton |
| Johnson, Gordon N., | Houlton |
| Kimball, Herrick C., | Fort Fairfield |
| Kirk, William V., | Eagle Lake |
| Labbe, Onil B., | Van Buren |
| LaPorte, Paul C., | Edmundston, N. B. |
| Larrabee, Fay F., | Washburn |
| Levesque, Romeo J., | Frenchville |
| Madigan, John B., | Houlton |
| Merrick, John R., | 17 South Main St., Caribou |
| Page, Rosario A., | Sweden St., Caribou |
| Proctor, Ray A., | 3 Teague St., Caribou |
| Reynolds, Arthur P., | 181 Main St., Presque Isle |
| Savage, Richard L., | Fort Kent |
| Somerville, Robert B., | 264 Main St., Presque Isle |
| Somerville, Wallace B., | Mars Hill |
| Swett, Clyde I., | Island Falls |
| Toussaint, Leonid G., | Fort Kent |
| Webber, John R., | Houlton |

SENIOR MEMBERS

| | |
|---|---|
| Damon, Albert H., | Limestone |
| Doble, Eugene H., | Presque Isle |
| Huggard, Leslie H., | Limestone |

HONORARY MEMBERS

| | |
|---|---|
| Albert, Louis N., | Van Buren |
| Kalloch, Herbert F., | Fort Fairfield |
| Sincock, Wiley E., | Caribou |

## CUMBERLAND COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Ansell, Harvey B., | 39 Deering St., Portland |
| Applin, Hilton H., | 129 Maine St., Brunswick |
| Aranson, Albert, | 73 Deering St., Portland |
| Asali, Louis A., | 29 Deering St., Portland |
| Asherman, Edward G., | 31 Deering St., Portland |
| Babalian, Leon, | 39 Deering St., Portland |
| Bachrach, Louis, | Brunswick |
| Beck, Henry W., | Gray |
| Bergmann, Jerome W., | 131 State St., Portland |
| Bettle, Ronald A., | Brunswick |
| Bickmore, Harold V., | 723 Congress St., Portland |
| Bischoffberger, John M., | Naples |
| Bishop, Lloyd W., | 188 State St., Portland |
| Blaisdell, Elton R., | 12 Deering St., Portland |
| Bramhall, Theodore C., | 49 Deering St., Portland |
| Branson, Sidney R., | 37 Main St., So. Windham |
| Broggi, Frank S., | 18 Neal St., Portland |
| Burbank, Bernerd H., | 275 Cottage Rd., So. Portland |
| Burns, Robert M., | 810 Main St., Westbrook |
| Burrage, William C., | 57 Deering St., Portland |
| Cappello, Joseph, | 144 Spring St., Portland |
| Casey, William L., | 131 State St., Portland |
| Center, Ervin A., | Steep Falls |
| Christensen, Harry E., | 672 Ocean Ave., Portland |
| Clarke, Chester L., | 10 Congress Sq., Portland |
| Clarkin, Charles P., | 131 State St., Portland |
| Conneen, Lawrence W., | 131 State St., Portland |
| Cummings, George O., | 47 Deering St., Portland |
| Curtis, Harry L., | 142 High St., Portland |
| Daniels, Donald H., | 73 Deering St., Portland |
| Darche, Albert A., | 782 Main St., Westbrook |
| Davidson, David, | 45 Deering St., Portland |
| Davidson, Gisela K., | 45 Deering St., Portland |
| Davies, Lloyd G., | Fryeburg |
| Davis, Harry E., | 169 State St., Portland |
| Derry, G. Hermann, Jr., | 690 Congress St., Portland |
| Dionne, Maurice J., | 36 Cumberland St., Brunswick |
| Doolcy, Francis M., | 53 Deering St., Portland |
| Dore, Kenneth E., | Fryeburg |
| Dorsey, F. Donald, | 52 Deering St., Portland |
| Douphinett, Otis J., | 763 Congress St., Portland |
| Drake, Emerson H., | 29 Deering St., Portland |
| Drake, Eugene H., | 58 Deering St., Portland |
| Dunham, Carl E., | 201 State St., Portland |
| Dyhrberg, Norman E., | 331 Main St., Cumberland Mills |
| Fagone, Francis A., | 312 Congress St., Portland |
| Ferguson, Franklin F., | 22 Arsenal St., Portland |
| Finks, Henry B., | 73 Deering St., Portland |
| Fish, Nicholas, | 38 Deering St., Portland |
| Fogg, C. Eugene, | 794 Great Plain Ave., Needham, Mass. |
| Foster, Thomas A., | 131 State St., Portland |
| Fox, Francis H., | 83 West St., Portland |
| Fox, S. Frank, | 173 State St., Portland |
| Freeman, William E., | 107 Main St., Yarmouth |
| Geer, Charles R., | 690 Congress St., Portland |
| Geer, George L., Jr., | 690 Congress St., Portland |
| Getchell, Ralph A., | 690 Congress St., Portland |
| Geyerhahn, George, | 47 Deering St., Portland |
| Glassmire, Charles R., | 58 Deering St., Portland |
| Goduti, Richard J., | 704 Congress St., Portland |
| Good, Philip G., | 38 Deering St., Portland |
| Gordon, Charles H., | 16 Deering St., Portland |
| Gould, Arthur L., | Freeport |
| Greco, Edward A., | 12 Pine St., Portland |
| Hall, Earl S., | 696 Congress St., Portland |
| Ham, Joseph G., | 690 Congress St., Portland |
| Hamel, John R., | 50 Deering St., Portland |
| Hanley, Daniel F., | Brunswick |
| Hanlon, Francis W., | 46 Deering St., Portland |
| Hanson, Henry W., Jr., | Cumberland Center |

| | |
|---|---|
| Hawkes, Richard S., | 47 Deering St., Portland |
| Heifetz, Ralph, | 173 State St., Portland |
| Holt, C. Lawrence, | 29 Deering St., Portland |
| Holt, William, | 14 Deering St., Portland |
| Hudson, Henry A., | Bridgton |
| Huntress, Roderick L., | 10 Congress Sq., Portland |
| Ives, Howard R., Jr., | 31 Deering St., Portland |
| Jackson, Calvin F., | State Rd., Falmouth Foreside |
| Jillson, Otis F., | 32 Deering St., Portland |
| Johnson, Albert C., | 45 Deering St., Portland |
| Johnson, Henry P., | 32 Deering St., Portland |
| Johnson, Oscar R., | 18 Deering St., Portland |
| Konecki, John T., | 821 Washington Ave., Portland |
| Kupelian, Nessib S., | Pownal State School, Pownal |
| Lamb, Henry W., | 131 State St., Portland |
| Lappin, John J., | 171 State St., Portland |
| Laughlin, K. Alexander, | 201 State St., Portland |
| Leighton, Adam P., | 192 State St., Portland |
| Leighton, Wilbur F., | 192 State St., Portland |
| Libby, Harold E., | 310 Main St., Westbrook |
| Lincoln, John R., | 22 Arsenal St., Portland |
| Loewenstein, George, | Great Chebeague Island |
| Logan, G. E. C., | 144 State St., Portland |
| Lombard, Reginald T., | 793 Main St., So. Portland |
| Lorimer, Robert V., | 150 State St., Portland |
| Love, Robert B., | Gorham |
| Lovely, David K., | 73 Deering St., Portland |
| Macdonald, H. Eugene, | 690 Congress St., Portland |
| MacVane, William L., Jr., | 211 State St., Portland |
| Maier, Paul, | 723 Congress St., Portland |
| Maltby, George L., | 203 State St., Portland |
| Marshall, Donald F., | 142 High St., Portland |
| Marston, Paul C., | Kezar Falls |
| Martin, Ralf, | 58 Deering St., Portland |
| Martin, Thomas A., | 203 State St., Portland |
| McAdams, William R., | 723 Congress St., Portland |
| McCann, Eugene C., | 49 Deering St., Portland |
| McCrum, Philip H., | 188 State St., Portland |
| McDermott, Leo J., | 151 Vaughan St., Portland |
| McFarland, Edward A., | Brunswick |
| McIntire, Barron F., Jr., | Yarmouth |
| McLean, E. Allan, | 29 Deering St., Portland |
| McManamy, Eugene P., | 39 Deering St., Portland |
| Melnick, Jacob, | 333 Congress St., Portland |
| Miller, Thor, | 752 Main St., Westbrook |
| Mills, Nathaniel, | Pownal State School, Pownal |
| Monkhouse, William A., | 131 State St., Portland |
| Moore, Roland B., | 201 State St., Portland |
| Morrison, Alvin A., | 57 Deering St., Portland |
| Moulton, Albert W., | 180 State St., Portland |
| Moulton, Albert W., Jr., | 180 State St., Portland |
| O'Donnell, Eugene E., | 32 Deering St., Portland |
| Ottum, Alvin E., | 150 State St., Portland |
| Parker, James M., | 31 Deering St., Portland |
| Patterson, James, | 614 Highland Ave., So. Portland |
| Peaslee, C. Capen, Jr., | 339 Woodford St., Portland |
| Penta, Walter E., | 316 Woodford St., Portland |
| Polisner, Saul R., | 188 State St., Portland |
| Porter, Joseph E., | 22 Arsenal St., Portland |
| Richardson, C. Earle, | 3 Cumberland St., Brunswick |
| Ridlon, Magnus G., | Kezar Falls |
| Robinson, Carl M., | 31 Deering St., Portland |
| Rowe, Daniel M., | 306 Congress St., Portland |
| Rowe, William T., | 306 Congress St., Portland |
| Russell, Walter, | 22 Arsenal St., Portland |
| Santoro, Domenico A., | 756 Congress St., Portland |
| Sapiro, Howard M., | 175 State St., Portland |
| Schwartz, Carol, | 38 Deering St., Portland |
| Scolten, Adrian H., | 32 Deering St., Portland |
| Shanahan, William H., | 1231 Forest Ave., Portland |
| Smith, Frank A., | 343 Main St., Westbrook |
| Smith, Kenneth E., | 73 Deering St., Portland |
| Sowles, Horace K., | 131 State St., Portland |
| Spencer, Jack, | 31 Deering St., Portland |
| Stevens, Theodore M., | 148 State St., Portland |
| Sturgis, Karl B., | Pownal State School, Pownal |
| Tabachnick, Henry M., | 110 Park Ave., Portland |
| Thaxter, Langdon T., | 31 Deering St., Portland |
| Thompson, Philip P., Jr., | 704 Congress St., Portland |
| Tougas, Raymond A., | Brunswick |
| Upham, Roscoe C., | 15 Crescent St., Biddeford |
| Ventimiglia, William A., | 22 Deering St., Portland |
| Ward, John V., | 131 State St., Portland |
| Webber, Isaac M., | 29 Deering St., Portland |
| Webber, M. Carroll, | 735 Stevens Ave., Portland |
| Weeks, DeForest, | 158 Pleasant Ave., Portland |
| Wellington, J. Foster, | 655 Congress St., Portland |
| Whittier, Alice A. S., | 143 Neal St., Portland |
| Wight, Donald G., | 30 Mitchell Rd., So. Portland |
| Williams, Ralph E., | Freeport |
| Woodman, Arthur B., | Falmouth Foreside |
| Zolov, Benjamin, | 296 Congress St., Portland |

SENIOR MEMBERS

| | |
|---|---|
| Barker, Nathaniel B. T., | Yarmouth |
| Beach, S. Judd, | 704 Congress St., Portland |
| Brown, Luther A., | 13 Deering St., Portland |
| Carmichael, Frank E., | 72 Deering St., Portland |
| Cragin, Charles L., | 831 Congress St., Portland |
| Ferguson, Franklin A., | 9 Deering St., Portland |
| Haskell, Alfred W., | 142 High St., Portland |
| Haskell, Harris B., | 9 Bramhall St., Portland |
| Hills, Louis L., | 816 Main St., Westbrook |
| Jamieson, James G. S., | 82 High St., Portland |
| Sawyer, Samuel G., | Cornish |
| Webb, Harold R., | 114 Main St., Brunswick |
| Webster, Fred P., | 101 Vaughan St., Portland |
| Welch, Francis J., | 44 Deering St., Portland |
| Wescott, Clement P., | Windham Hill |

HONORARY MEMBERS

| | |
|---|---|
| Bradford, William H., | 133 Coyle St., Portland |
| Brock, Henry H., | Alfred |
| Emery, Harry S., | 721 Stevens Ave., Portland |
| Foster, Albert D., | Bay Shore Drive, Falmouth Foreside |
| Howard, Harvey, | Freeport |
| Robinson, Edward F., | Falmouth |
| Stetson, Elbridge G. A., | Brunswick |
| Tetreau, Thomas, | 44 Monument Sq., Portland |
| Tobie, Walter E., | 3 Deering St., Portland |
| Wheet, Frederick E., | 773 Main St., Westbrook |

## FRANKLIN COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Brinkman, Harry, | 47 Perham St., Farmington |
| Brown, Elmer J., | 81 Main St., Farmington |
| Chase, Philip B., | Anson St., Farmington |
| Colley, Maynard B., | Wilton |
| Duffy, Wallace E., | 100 Main St., Farmington |
| Eastman, Charles W., | Livermore Falls |
| Floyd, Paul E., | 2 Middle St., Farmington |
| Moulton, John H., | Rangeley |
| Reed, James W., | 18 Main St., Farmington |
| Thompson, Cecil F., | Phillips |
| Weymouth, Currier C., | 83 Main St., Farmington |
| Zikel, Herbert M., | Wilton |

SENIOR MEMBERS

| | |
|---|---|
| Floyd, Albion E., | New Sharon |
| Pratt, George L., | 7 Main St., Farmington |

HONORARY MEMBER

White, Verdeil O., 24 Howard St., Springvale, and North Jay

## HANCOCK COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Babcock, Harold S., | Castine |
| Black, Paul E., | Southwest Harbor |
| Bliss, Raymond V. N., | Blue Hill |
| Burgess, Lyman C., | Blue Hill |
| Cameron, Dwight, | Northeast Harbor |
| Clarke, Raymond W., | Ellsworth |
| Coffin, Ernest L., | Northeast Harbor |
| Coffin, Silas A., | Bar Harbor |
| Crowe, James H., | Ellsworth |

| | |
|---|---|
| Gray, Philip L., | So. Brooksville |
| Knickerbocker, Charles H., | Bar Harbor |
| Knowlton, Charles C., | Ellsworth |
| Kopfmann, Harry, | Deer Isle |
| Larrabee, Charles F., | Bar Harbor |
| Millstein, Hyman, | Southwest Harbor |
| Morrison, Charles C., Jr., | Bar Harbor |
| O'Meara, Edward S., | Ellsworth |
| Parcher, George, | Ellsworth |
| Sumner, Charles M., | West Sullivan |
| Thegan, W. Edward, | Bucksport |
| Torrey, Marcus A., | Ellsworth |
| Trowbridge, Mason, Jr., | Ellsworth |
| Weymouth, Raymond E., | Bar Harbor |
| Wilbur, Herbert T., Jr., | Southwest Harbor |

HONORARY MEMBERS

| | |
|---|---|
| Holt, Hiram A., | Winter Harbor |
| Little, Clarence Cook, | Bar Harbor |

## KENNEBEC COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Bauman, Clair S., | 177 Main St., Waterville |
| Beckerman, Stanley C., | Waterville |
| Bisson, Napoleon, | 29 Common St., Waterville |
| Bourassa, Harvey J., | 50 Main St., Waterville |
| Brann, Henry A., | 31 Western Ave., Augusta |
| Breard, J. Alfred, | 15 Summer St., Waterville |
| Bull, Frank B., | 72 Church St., Gardiner |
| Cates, Samuel C., | East Vassalboro |
| Champlin, Frederic B., | Waterville |
| Chasse, Richard L., | 173 Main St., Waterville |
| Cook, Aaron, | 44 Main St., Waterville |
| Cordray, David P., | Augusta |
| Cyr, Gerald A., | 50 Main St., Waterville |
| Dachslager, Philip, | 269½ Water St., Augusta |
| Dennis, Richard H., | 33 College Ave., Waterville |
| Dore, Clarence E., | 88 Pleasant St., Waterville |
| Dunn, Robert H., | Veterans' Adm., Togus |
| Elkins, Harry, | State Hosp., Augusta |
| Emanuel, Meyer, | Veterans' Adm., Togus |
| Ervin, Edmund N., | 33 College Ave., Waterville |
| Farrell, Chalmers G., | 2 Church St., Gardiner |
| Fay, Thomas F., | 284 Water St., Augusta |
| Fisher, Samson, | Oakland |
| Giddings, Paul D., | 31 Western Ave., Augusta |
| Giesen, Joseph H., | Waterville |
| Gingras, Adolphe J., | 99 Water St., Augusta |
| Gingras, Napoleon J., | 105 Water St., Augusta |
| Goodof, Irving I., | Waterville |
| Goodrich, Blynn O., | 165 Main St., Waterville |
| Guite, L. Armand, | 27 Main St., Waterville |
| Harlow, Edwin W., | 177 Main St., Waterville |
| Herring, Leon D., | Winthrop |
| Hill, Frederick T., | 177 Main St., Waterville |
| Hill, Howard F., | 33 College Ave., Waterville |
| Hirschberger, Celia, | 44 Main St., Waterville |
| Hurd, Allan C., | 72 Church St., Gardiner |
| Jackson, Elmer H., | Depositors Trust Bldg., Augusta |
| Jump, Clarence E., | Veterans' Adm., Augusta, Georgia |
| Kagan, Samuel H., | 283 Water St., Augusta |
| Lambert, Greenlief H., | 213 18th Place, Manhattan Beach, Calif. |
| Langer, Ella, | State House, Augusta |
| Lepore, Anthony E., | 72 Church St., Gardiner |
| Lubell, Moses F., | 50 Roosevelt Ave., Waterville |
| Marquardt, Matthias, | State Hosp., Augusta |
| Matthews, Hugh J., Jr., | Gardiner |
| McCoy, Thomas C., | 90 Main St., Waterville |
| McKay, Roland L., | 284 Water St., Augusta |
| McLaughlin, Clarence R., | 345 Water St., Gardiner |
| McLaughlin, Ivan E., | 345 Water St., Gardiner |
| McQuillan, Arthur H., | 177 Main St., Waterville |
| McWethy, Wilson H., | 31 Western Ave., Augusta |
| Metzgar, John G., | 175 Water St., Augusta |
| Michaud, Joseph H. C., | 76 Main St., Waterville |
| Milliken, Howard H., | 105 Second St., Hallowell |
| Moore, Arnold W., | State Hosp., Augusta |
| Moore, Valentine J., | Thayer Hosp., Waterville |
| Morrell, Arch H., | State House, Augusta |
| Murphy, Norman B., | 31 Western Ave., Augusta |
| Nelson, John A., | Veterans' Adm., Togus |
| Newcomb, Charles H., | Clinton |
| Newman, Benjamin, | 1204 Westwood Ave., Charleston 2, West Virginia |
| O'Connor, William J., | 341 Water St., Augusta |
| Parizo, Harry L., | 2 Silver St., Waterville |
| Piper, John O., | 177 Main St., Waterville |
| Pomerleau, Ovid F., | 177 Main St., Waterville |
| Pomerleau, Rodolphe J. F., | 27 Main St., Waterville |
| Poulin, James E., | 177 Main St., Waterville |
| Pratt, Loring W., | Waterville |
| Priest, Maurice A., | State House, Augusta |
| Provost, Helen C., | 48 Green St., Augusta |
| Provost, Pierre E., | 48 Green St., Augusta |
| Reynolds, John F., | 101 Main St., Waterville |
| Reynolds, Ralph L., | 101 Main St., Waterville |
| Robertson, George J., | Cen. Me. San., Fairfield |
| Sanders, Stephen W., | 120 Main St., Winthrop |
| Schmidt, Lorrimer M., | Veterans' Adm., Togus |
| Sewall, Kenneth W., | 173 Main St., Waterville |
| Shelton, M. Tieche, | 284 Water St., Augusta |
| Shippee, James N., | 122 Main St., Winthrop |
| Simpson, Margaret R., | P. O. Box 275, Togus |
| Sleeper, Francis H., | State Hosp., Augusta |
| Small, Harold E., | 31 Grove St., Augusta |
| Sommerfeld, Kurt A., | 6 Maine Ave., Gardiner |
| Southworth, John D., | Veterans' Adm., Togus |
| Tashiro, Sabro, | Veterans' Adm., Togus |
| Towne, Charles E., | 50 Main St., Waterville |
| Tyson, Forrest C., | R. F. D. 5, Augusta |
| Valentine, John B., | 25 Patterson St., Augusta |
| Wilson, Robert W., | Veterans' Adm., Togus |
| Young, William J., | 92 Wood St., Lewiston |

SENIOR MEMBERS

| | |
|---|---|
| Carter, Frederick R., | 43 Sylvan Rd., So. Portland |
| Coombs, George A., | 283 Water St., Augusta |
| Gousse, William L., | 76 Main St., Fairfield |
| Mitchell, Roscoe L., | 97 Water St., Hallowell |
| Odiorne, Joseph E., | Coopers Mills |
| Risley, Edward H., | 27 College Ave., Waterville |
| Stubbs, Richard H., | 133 State St., Augusta |
| Towne, John G., | 135 Main St., Waterville |
| Williams, Edmund P., | Oakland |

HONORARY MEMBERS

| | |
|---|---|
| Milliken, Howard A., | Hallowell |
| Turner, Oliver W., | P. O. Box 481, Boothbay Harbor |

## KNOX COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Allen, Robert L., | 37 Spring St., Rockland |
| Apollonio, Howard L., | 7 Talbot Ave., Rockland |
| Brown, Donald H., | 13 Maple St., Rockland |
| Brown, Freeman F., | 5 Beech St., Rockland |
| Brown, Freeman F., Jr., | 446 Hartford Ave., Wethersfield, Conn. |
| Campbell, Fred G., | Warren |
| Dennison, Frederick C., | Main St., Thomaston |
| Earle, Ralph P., | Vinalhaven |
| Frohock, Horatio W., | 10 Summer St., Rockland |
| Green, Archibald F., | 60 Elm St., Camden |
| Hinckley, Harry F., Jr., | Dark Harbor |
| Jameson, C. Harold, | 463 Main St., Rockland |
| Jones, Paul A., | Union |
| Kibbe, Frank W., | 37 Spring St., Rockland |
| Lawry, Oram R., Jr., | 96 Limerock St., Rockland |
| Mann, David V., | 47 Chestnut St., Camden |
| Miller, John F., | 81 Park St., Rockland |
| Millington, Paul A., | 44 Mountain St., Camden |
| North, Charles D., | 38 Union St., Rockland |
| Platt, Anna, | Friendship |
| Soule, Gilmore W., | 463 Main St., Rockland |
| Tounge, Harry G., | 12 Union St., Camden |
| Wasgatt, Wesley N., | 41 Talbot Ave., Rockland |
| Weisman, Herman J., | 76 Limerock St., Rockland |

### HONORARY MEMBERS

| | |
|---|---|
| Hall, Walter D., | 407 Main St., Rockland |
| Tweedie, Hedley V., | 76 No. Main St., Rockland |

## LINCOLN-SAGADAHOC COUNTIES

### ACTIVE MEMBERS

| | |
|---|---|
| Barrows, Harris C., | 5 Oak St., Boothbay Harbor |
| Belknap, Robert W., | Damariscotta |
| Belknap, Samuel L., | Damariscotta |
| Dalrymple, Sidney C., | 239 Walnut St., Brookline, Mass. |
| Dash, George E., | Boothbay Harbor |
| Desjardins, A. W., | So. Bristol |
| Dougherty, John F., | 112 Front St., Bath |
| Fuller, Edwin M., Jr., | Hartford Hosp., Anes. Dept., Hartford, Conn. |
| Goodrich, John P., | Boothbay Harbor |
| Gregory, Philip O., | Boothbay Harbor |
| Hamilton, Virginia C., | 900 Washington St., Bath |
| Hawkins, Donald B., | Manheim Gardens—5A—Manheim at Schuyler St., Philadelphia 44, Penna. |
| Kershner, Warren E., | 119 Front St., Bath |
| Lenfest, Stanley R., | Waldoboro |
| Morin, Harry F., | 72 Front St., Bath |
| Nichols, Arthur A., | Wiscasset |
| Parsons, Neil L., | Damariscotta |
| Powell, Ralph, | New Harbor |
| Proctor, Thomas E., | Boothbay Harbor |
| Smith, Jacob, | 118 Front St., Bath |
| Smith, Joseph I., | 118 Front St., Bath |
| Stetson, Rufus E., | Damariscotta |
| Stott, Ardenne A., | 117 Front St., Bath |
| Sylvester, Philip H., | Bristol Rd., Damariscotta |
| Wilson, Harry M., | Middle St., Bath |
| Winchenbach, Francis A., | 910 Washington St., Bath |

### SENIOR MEMBERS

| | |
|---|---|
| Bousfield, Cyril E., | Woolwich |
| Day, DeForest S., | Wiscasset |
| Pratt, Edwin F., | 14 Pleasant St., Richmond |

## OXFORD COUNTY

### ACTIVE MEMBERS

| | |
|---|---|
| Adams, Lester, | Western Me. San., Greenwood Mt. |
| Aucoin, Pierre B., | 77 Rumford Ave., Rumford |
| Boynton, Willard H., | Bethel |
| Broughton, David S., | 18 Hartford Ave., Rumford |
| Defoe, Garfield G., | Dixfield |
| Dixon, Walter G., | 16 Deering St., Norway |
| Elsemore, Dexter E., | Dixfield |
| Greene, John A., | 96 Congress St., Rumford |
| Howard, Henry M., | 105 Franklin St., Rumford |
| Hubbard, Roswell E., | Waterford |
| Kay, Edwin, | 31 Frye St., Lewiston |
| MacDougall, James A., | 303 Penobscot St., Rumford |
| Matheson, John A., | Bethel |
| McCormack, Roland L., | 245 Main St., Norway |
| Moore, Beryl M., | Oxford |
| Nangle, Thomas, | West Paris |
| Nelson, Chesley W., | 121 Main St., Norway |
| Noyes, Harriett L., | 114 Congress St., Rumford |
| Oestrich, Alfred, | Rumford |
| Reeves, Edward L., | 38 Market Sq., So. Paris |
| Reeves, Helene M., | 38 Market Sq., So. Paris |
| Rowe, Linwood M., | 250 Penobscot St., Rumford |
| Royal, Albert P., Jr., | 82 Maine Ave., Rumford |
| Stanwood, Harold W., | 5 Franklin St., Rumford |

### SENIOR MEMBERS

| | |
|---|---|
| Leslie, Frank E., | Eastland Hotel, Portland |
| McCarty, Eugene M., | 82 Maine Ave., Rumford |
| Pearson, Henry, | Brownfield (Center Conway, N. H.) |
| Stewart, Delbert M., | 15 Main St., So. Paris |
| Tibbetts, Raymond R., | Bethel |

## PENOBSCOT COUNTY

### ACTIVE MEMBERS

| | |
|---|---|
| Adams, Asa C., | Main St., Orono |
| Albro, Ward A., | 205 French St., Bangor |
| Ames, Forrest B., | 255 Hammond St., Bangor |
| Barrett, Robert J., Jr., | 268 State St., Bangor |
| Blaisdell, Carl E., | 42 Broadway, Bangor |
| Blaisdell, William B., | 11 Ohio St., Bangor |
| Bridges, Donald E., | 263 State St., Bangor |
| Brown, Eugene E., | 316 State St., Bangor |
| Brown, Lloyd, | 316 State St., Bangor |
| Burke, Paul W., | 23 Main St., Newport |
| Butler, Harry, | 77 Broadway, Bangor |
| Butterfield, Wilfred I., | 119 Main St., Lincoln |
| Clough, Dexter J., 2nd, | 224 State St., Bangor |
| Clough, Herbert T., Jr., | 111 State St., Bangor |
| Comeau, Wilfred J., | 1 Fern St., Bangor |
| Cornell, Robert C., | Permanente Hosp., Broadway and McArthur Blvd., Oakland, Calif. |
| Coulton, Donald, | 326 State St., Bangor |
| Craig, D. Allan, | 41 E. 42nd St., New York 17, N. Y. |
| Curran, Edward L., | 159 State St., Bangor |
| Cutler, Lawrence M., | 31 Grove St., Bangor |
| Devan, Thomas A., | 10245—47th Ave., Corona, L. I., N. Y. |
| Dietrich, Mary M., | R. R. #3, So. Brewer |
| Dunham, Rand A., | East Millinocket |
| Dwyer, Clement S., | 35 Maple St., Bangor |
| Emerson, W. Merritt, | 131 State St., Bangor |
| Emery, Clarence, Jr., | 92 Essex St., Bangor |
| Fellows, Albert W., | 52 Ohio St., Bangor |
| Hall, Walter L. H., | 50 N. 4th St., Old Town |
| Hammond, Walter J., | State Hosp., Bangor |
| Higgins, George I., | Newport |
| Hill, Allison K., | 113 Somerset St., Bangor |
| Horton, George H., | 247 Hammond St., Bangor |
| Houlihan, John S., | 209 State St., Bangor |
| Kellogg, Robert O., | 316 State St., Bangor |
| Knowlton, Henry C., | 47 Broadway, Bangor |
| Lezberg, Joseph, | 209 State St., Bangor |
| Liebermann, Arthur R., | 209 State St., Bangor |
| Lippmann, Werner O., | State Hosp., Bangor |
| Macdonald, Donald F., | 263 State St., Bangor |
| Manter, Wilbur B., | 1 Fern St., Bangor |
| McNamara, Wesley C., | 8 Lee St., Lincoln |
| McNeil, Harry D., | 58 Hammond St., Bangor |
| McQuoid, Robert M., | 39 Columbia St., Bangor |
| Memmelaar, Joseph E., | 11 Ohio St., Bangor |
| Merrill, Urban H., | 15 Water St., Newport |
| Miragliuolo, Leonard G., | 130 Hammond St., Bangor |
| Morris, Lloyd E., Jr., | 489 State St., Bangor |
| Moulton, Manning C., | 150 State St., Bangor |
| Munce, Richard T., | 264 State St., Bangor |
| Osler, Jay K., | 5 Grove St., Bangor |
| Pearson, John J., Jr., | Old Town |
| Pooler, Harold A., | State Hosp., Bangor |
| Pressey, Harold E., | 23 Hammond St., Bangor |
| Purinton, William A., | 15 Ohio St., Bangor |
| Ridlon, Magnus F., | 99 Broadway, Bangor |
| Ruhlin, Carl W., | 205 French St., Bangor |
| Scribner, Herbert C., | 259 Union St., Bangor |
| Shapero, Benjamin L., | 73 Broadway, Bangor |
| Shubert, Alice J., | 127 Leighton St., Bangor |
| Shubert, William M., | 127 Leighton St., Bangor |
| Shurman, Hans, | 381 Main St., Dexter |
| Silsby, Samuel S., | 11 Ohio St., Bangor |
| Skinner, Peter S., | 112 Ohio St., Bangor |
| Smith, Hugh A., | 489 State St., Bangor |
| Smith, LeRoy H., | Winterport |
| Strout, Warren G., | 44 Main St., Pittsfield |
| Strout, Arthur C., | Dexter |
| Stull, Joseph B., | 489 State St., Bangor |
| Sullivan, John R., | 59 Spruce St., Millinocket |
| Taylor, Cornelius J., | 16 State St., Bangor |
| Taylor, Herbert L., | Dexter |
| Todd, Albert C., | Brewer |
| Vickers, Martyn A., | 268 State St., Bangor |
| Wadsworth, Richard C., | 489 State St., Bangor |

| | |
|---|---|
| Warren, Lyman O., Jr., | 156 No. Main St., Brewer |
| Weatherbee, George B., | Hampden Highlands |
| Weisz, Hans, | 164 Main St., Lincoln |
| White, William J., | Howland |
| Whitney, Byron V., | 156 State St., Bangor |
| Whitworth, John E., | 116 Hammond St., Bangor |
| Woodcock, Allan, | 35 Second St., Bangor |
| Wright, LaForest J., | 411 Union St., Bangor |
| Young, Ernest T., | Millinocket |

SENIOR MEMBERS

| | |
|---|---|
| Hedin, Carl J., | 381 Ohio St., Bangor |
| Maddan, Martin C., | 165 Center St., Old Town |
| Mansfield, Blanche M., | 297—14th St., Bangor |
| Mason, Luther S., | 109 State St., Bangor |

HONORARY MEMBERS

| | |
|---|---|
| Lethiecq, J. Albert, | 115 Wilson St., Brewer |
| Purinton, Watson S., | 15 Ohio St., Bangor |
| Small, Amos E., | 31 Central St., Bangor |
| Thompson, John B., | 9 Central St., Bangor |
| Weymouth, Frank D., | 46 No. Main St., Brewer |

## PISCATAQUIS COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Bradbury, Francis W., | Dover-Foxcroft |
| Bundy, Harvey C., | Milo |
| Carde, Albert M., | 33 Elm St., Milo |
| Curtis, John B., | 10 High St., Milo |
| Dore, Guy E., | Guilford |
| Howard, George C., | Guilford |
| Nickerson, Norman H., | Greenville |
| Pritham, Fred J., | Greenville Jct. |
| Stanhope, Charles N., | Dover-Foxcroft |
| Stitham, Linus J., | 8 Main St., Dover-Foxcroft |
| Stuart, Ralph C., | Guilford |

SENIOR MEMBER

| | |
|---|---|
| MacDougal, Wilbur E., | Dover-Foxcroft |

HONORARY MEMBER

| | |
|---|---|
| Crosby, Nathaniel H., | Milo |

## SOMERSET COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Amrein, H. Carl, | 29 Western Ave., Madison |
| Ball, Franklin P., | Bingham |
| Bernard, Albert J., Jr., | 198 Madison Ave., Skowhegan |
| Briggs, Paul R., | Hartland |
| Friend, John, | North Anson |
| Greenlaw, William A., | Fairfield |
| Grow, William B., | Cen. Me. San., Fairfield |
| Humphreys, Ernest D., | 91 Main St., Pittsfield |
| Hutchins, Eugene L., | No. New Portland |
| Laney, Richard P., | Skowhegan |
| Lord, Edwin M., | 198 Madison Ave., Skowhegan (temp. Memorial Hosp., Pawtucket, R. I.) |
| Lord, Maurice E., | 220 Water St., Skowhegan |
| Norris, Lester F., | 36 Maple St., Madison |
| Philbrick, Maurice S., | 292 Water St., Skowhegan |
| Reed, Howard L., | Skowhegan |
| Smith, Henry F., | Jackman Sta. |
| Stinchfield, Allan J., | 29 Hedgehill Rd., Brookline, Mass. |
| Strickland, Marion S., | Canaan |
| Sullivan, George E., | Bingham |
| Turner, Harland G., | R. F. D. No. 2, Norridgewock |
| Young, George E., | 159 Water St., Skowhegan |

SENIOR MEMBER

| | |
|---|---|
| Marston, Henry E., | No. Anson |

HONORARY MEMBERS

| | |
|---|---|
| Milliken, Walter S., | 35 Maple St., Madison |
| Stinchfield, Walter S., | Court St., Skowhegan |

## WALDO COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Caswell, John A., | 7 Cedar St., Belfast |
| Holmes, George W., | Belfast |
| Jones, Richard P., | 5 Franklin St., Belfast |
| Read, Seth H., | 15 Church St., Belfast |
| Small, Foster C., | 169 High St., Belfast |
| Stein, Abraham O., | 132 Main St., Belfast |
| Stein, Ernest W., | Stockton Springs |
| Stevens, Carl H., | 18 Franklin St., Belfast |
| Temple, George L., | 18 Franklin St., Belfast |
| Torrey, Raymond L., | E. Main St., Searsport |

HONORARY MEMBERS

| | |
|---|---|
| Stevens, Eugene L., | 38 Church St., Belfast |
| Tapley, Eugene D., | 17 High St., Belfast |

## WASHINGTON COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Armstrong, Charles M., | Robbinston |
| Bates, James C., | Calais |
| Bennett, DaCosta F., | Lubec |
| Brownrigg, Leslie W., | St. Stephen, N. B. |
| Capron, Charles W., Jr., | Eastport |
| Cobb, Norman E., | Calais |
| Hanson, John F., | Machias |
| Jacob, Donald R., | Princeton |
| Kazutow, John, | Machias |
| Larson, Karl V., | East Machias |
| Larson, Oscar F., | Machias |
| MacBride, Robert G., | Lubec |
| Metcalf, John T., | Calais |
| Mitchell, Hazen C., | Calais |
| Mundie, Perley J., | Calais |
| Sammis, G. Frank, | Millbridge |
| Sears, Harold G., | Woodland |
| Webber, Samuel R., | Calais |
| Young, H. John, | Jonesport |

SENIOR MEMBER

| | |
|---|---|
| Crane, James W., | Woodland |

HONORARY MEMBER

| | |
|---|---|
| Gilbert, Walter J., | Calais |

## YORK COUNTY

ACTIVE MEMBERS

| | |
|---|---|
| Bacon, Melvin, | 206 Main St., Sanford |
| Bancroft, George R., Jr., | Kennebunkport |
| Barden, Frank W., | Saco-Lowell Shops, Biddeford |
| Belmont, Ralph S., | Washington St., Sanford |
| Bunker, Willard H., | York Harbor |
| Charest, Leandre R., | 260 Main St., Biddeford |
| Cobb, Stephen A., | 28 Winter St., Sanford |
| Cuneo, Kenneth J., | Kennebunk |
| Dennett, Carl G., | Saco |
| Dionne, William E., | 21 Main St., Springvale |
| Downing, J. Robert, | 37 Storer St., Kennebunk |
| Eppinger, Ernest, | West Buxton |
| Fortier, Andre P., | 260 Main St., Biddeford |
| Gould, George I., | 76 Main St., Richmond |
| Haas, Carl M., | 31 Adam St., Biddeford |
| Hill, Paul S., Jr., | 176 Main St., Saco |
| Holland, Edward W., | 28 Winter St., Sanford |
| Houle, Marcel P., | Biddeford |
| Kinghorn, Charles W., | Kittery |
| LaFond, Robert S., | Masonic Block, Saco |
| LaRochelle, Joseph R., | 42 Bacon St., Biddeford |
| Lengyel, Charles, | Biddeford |
| Lincourt, Armand L., | 47 Allen St., Sanford |
| Macdonald, James H., | 103 Main St., Kennebunk |
| Magocsi, Alexander W., | York Village |
| Mahaney, William F., | 338 Main St., Saco |
| Mazzacane, Walter D., | Old Orchard |

| | |
|---|---|
| Morse, Waldron L., | 111½ Main St., Springvale |
| Moulton, Marion A. K., | West Newfield |
| Murphy, John J., | South Berwick |
| Myer, John C., | 2 School St., Sanford |
| Nemon, Leon, | 213 State St., Portland |
| O'Sullivan, William B., | 331 Main St., Saco |
| Patane, Joseph M., | 21 Washington Ave., Old Orchard |
| Perrault, Oscar W., | 30 South St., Biddeford |
| Richards, Carl E., | 28 Winter St., Sanford, and Alfred |
| Ross, H. Danforth, | 28 Winter St., Sanford |
| Ross, Maurice, | 372 Main St., Saco |
| Roussin, William T., | 18 Bacon St., Biddeford |
| Smith, Gerald R., | Ogunquit |
| Taylor, Paul E., | 9 Wentworth St., Kittery |
| Tower, Elmer M., | Ogunquit |
| Vachon, Robert D., | 28 Winter St., Sanford |
| Webber, Edward P., | York Harbor |
| Xaphes, Chrysaphes J., | 107 Main St., Biddeford |

SENIOR MEMBERS

| | |
|---|---|
| Head, Owen B., | 6 Washington St., Sanford |
| Kendall, Clarence F., | 68 Birch St., Biddeford |
| Stickney, Laura B., | Saco |
| Whitney, Ray L., | Cape Porpoise |
| Wiley, Arthur G., | Bar Mills |

HONORARY MEMBERS

| | |
|---|---|
| Shapleigh, Edward E., | Kittery |
| Small, Fitz E., | 260 Main St., Biddeford |
| Smith, William W., | Ogunquit |
| Stimpson, Arthur J., | Kennebunk |

HONORARY MEMBER

| | |
|---|---|
| Locke, Herbert E., Esq., | Association Attorney, Augusta |

## An Alphabetical List of the Members of the Maine Medical Association*

* The figures in parentheses refer to County Societies as follows: (1) Androscoggin, (2) Aroostook, (3) Cumberland, (4) Franklin, (5) Hancock, (6) Kennebec, (7) Knox, (8) Lincoln-Sagadahoc, (9) Oxford, (10) Penobscot, (11) Piscataquis, (12) Somerset, (13) Waldo, (14) Washington, (15) York.

### A

Adams, Asa C., Main St., Orono (10)
Adams, Lester, Western Maine San., Greenwood Mt. (9)
Albert, Armand, 193 Main St., Van Buren (2)
Albert, Joseph L., Fort Kent (2)
Albert, Louis N., Van Buren (2)
Albro, Ward A., 205 French St., Bangor (10)
Allen, Robert L., 37 Spring St., Rockland (7)
Ames, Forrest B., 255 Hammond St., Bangor (10)
Amrein, H. Carl, 29 Weston Ave., Madison (12)
Anderson, Donald L., 70 Pine St., Lewiston (1)
Ansell, Harvey B., 39 Deering St., Portland (3)
Apollonio, Howard L., 7 Talbot Ave., Rockland (7)
Applin, Hilton H., 129 Maine St., Brunswick (3)
Aranson, Albert, 73 Deering St., Portland (3)
Archambault, Philip L., 75 Mill St., Auburn (1)
Armstrong, Charles M., Robbinston (14)
Asali, Louis A., 29 Deering St., Portland (3)
Ascher, David S., Patten (2)
Asherman, Edward G., 31 Deering St., Portland (3)
Aucoin, Pierre B., 77 Rumford Ave., Rumford (9)
Aungst, Melvin R., Eagle Lake (2)

### B

Babalian, Leon, 39 Deering St., Portland (3)
Babcock, Harold S., Castine (5)
Bachrach, Louis, Brunswick (3)
Bacon, Melvin, 206 Main St., Sanford (15)
Ball, Franklin P., Bingham (12)
Bancroft, George R., Jr., Kennebunkport (15)
Barden, Frank W., Saco-Lowell Shops, Biddeford (15)
Barker, Nathaniel B. T., Yarmouth (3)
Barrett, Robert J., Jr., 268 State St., Bangor (10)
Barrows, Harris C., 5 Oak St., Boothbay Harbor (8)
Bates, James C., Calais (14)
Bauman, Clair S., 177 Main St., Waterville (6)
Beach, S. Judd, 704 Congress St., Portland (3)
Beck, Henry W., Gray (3)
Beeaker, Vincent H., 85 Wood St., Lewiston (1)
Beckerman, Stanley C., Waterville (6)
Beliveau, Bertrand A., 56 Howe St., Lewiston (1)
Beliveau, Romeo A., 89 Pine St., Lewiston (1)
Belknap, Robert W., Damariscotta (8)
Belknap, Samuel L., Damariscotta (8)
Belmont, Ralph S., Washington St., Sanford (15)
Bennett, DaCosta F., Lubec (14)
Bergmann, Jerome W., 131 State St., Portland (3)
Bernard, Albert J., 198 Madison Ave., Skowhegan (12)
Bernard, Romeo A., 26 Beacon St., Lewiston (1)
Berrie, Lloyd H., Caribou (2)
Bettle, Ronald A., Brunswick (3)
Bickmore, Harold V., 723 Congress St., Portland (3)
Bischoffberger, John M., Naples (3)
Bishop, Lloyd W., 188 State St., Portland (3)
Bisson, Napoleon, 29 Common St., Waterville (6)
Black, Paul E., Southwest Harbor (5)
Blaisdell, Carl E., 42 Broadway, Bangor (10)
Blaisdell, Elton R., 12 Deering St., Portland (3)
Blaisdell, William B., 11 Ohio St., Bangor (10)
Bliss, Raymond V. N., Blue Hill (5)
Bluhm, Samuel, St. Mary's Hospital, Lewiston (1)
Boone, Storer W., Presque Isle (2)
Bourassa, Harvey J., 50 Main St., Waterville (6)
Bousfield, Cyril E., Woolwich (8)
Bousquet, Jean J., 91 Bartlett St., Lewiston (1)
Boynton, Willard H., Bethel (9)
Bradbury, Francis W., Dover-Foxcroft (11)
Bradford, William H., 133 Coyle St., Portland (3)
Bramhall, Theodore C., 49 Deering St., Portland (3)
Brann, Henry A., 31 Western Ave., Augusta (6)
Branson, Sidney R., 37 Main St., So. Windham (3)
Breard, J. Alfred, 15 Summer St., Waterville (6)
Bridges, Donald E., 263 State St., Bangor (10)
Briggs, Paul R., Hartland (12)
Brien, Maurice, 80 Pine St., Lewiston (1)
Brinkman, Harry, 47 Perham St., Farmington (4)
Brock, Henry H., Alfred (3)
Broggi, Frank S., 18 Neal St., Portland (3)
Broughton, David S., 18 Hartford Ave., Rumford (9)
Brown, Donald H., 13 Maple St., Rockland (7)
Brown, Elmer J., 81 Main St., Farmington (4)
Brown, Eugene E., 316 State St., Bangor (10)
Brown, Freeman F., 5 Beech St., Rockland (7)
Brown, Freeman F., Jr., 446 Hartford Ave., Wethersfield, Conn. (7)
Brown, Lloyd, 316 State St., Bangor (10)
Brown, Luther A., 13 Deering St., Portland (3)
Brown, Stephen S., Mars Hill (2)
Brownrigg, Leslie W., St. Stephen, N. B. (14)
Buker, Edson B., 80 Goff St., Auburn (1)
Bull, Frank B., 72 Church St., Gardiner (6)
Bundy, Harvey C., Milo (11)
Bunker, Willard H., York Harbor (15)
Burbank, Bernerd H., 275 Cottage Rd., So. Portland (3)
Burgess, Lyman C., Blue Hill (5)
Burke, Paul W., 23 Main St., Newport (10)
Burns, Robert M., 810 Main St., Westbrook (3)
Burr, Charles G., Houlton (2)
Burrage, William C., 57 Deering St., Portland (3)
Busch, John J., 105 Elm St., Mechanic Falls (1)

Butler, Harry, 77 Broadway, Bangor (10)
Butterfield, Wilfred I., 119 Main St., Lincoln (10)

## C

Call, Ernest V., 118 Pine St., Lewiston (1)
Cameron, Dwight, Northeast Harbor (5)
Campbell, Fred G., Warren (7)
Capron, Charles W., Jr., Eastport (14)
Cappello, Joseph, 144 Spring St., Portland (3)
Carde, Albert M., 33 Elm St., Milo (11)
Carmichael, Frank E., 72 Deering St., Portland (3)
Caron, Frederic J., 174 Bates St., Lewiston (1)
Carter, Frederick R., 43 Sylvan Rd., So. Portland (6)
Carter, Loren F., Northern Maine San., Presque Isle (2)
Cartland, John E., 117 Goff St., Auburn (1)
Casey, William L., 131 State St., Portland (3)
Caswell, John A., 7 Cedar St., Belfast (13)
Cates, Samuel C., East Vassalboro (6)
Cattley, Amy L., 477 Main St., Lewiston (1)
Center, Ervin A., Steep Falls (3)
Champlin, Frederic B., Waterville (6)
Chapin, Milan A., 237 Turner St., Auburn (1)
Charest, Leandre R., 260 Main St., Biddeford (15)
Chase, Philip B., Anson St., Farmington (4)
Chasse, Richard L., 173 Main St., Waterville (6)
Chenery, Frederick L., Jr., Monmouth (1)
Chevalier, Paul R., 355 Pine St., Lewiston (1)
Christensen, Harry E., 672 Ocean Ave., Portland (3)
Clapp, Waldo A., 215 College St., Lewiston (1)
Clapperton, Gilbert, 20 Ware St., Lewiston (1)
Clarke, Chester L., 10 Congress Sq., Portland (3)
Clarke, Raymond W., Ellsworth (5)
Clarkin, Charles P., 131 State St., Portland (3)
Clough, Dexter J., 2nd, 224 State St., Bangor (10)
Clough, Herbert T., Jr., 111 State St., Bangor (10)
Cobb, Norman E., Calais (14)
Cobb, Stephen A., 28 Winter St., Sanford (15)
Coffin, Ernest L., Northeast Harbor (5)
Coffin, Silas A., Bar Harbor (5)
Colley, Maynard B., Wilton (4)
Comeau, Wilfred J., 1 Fern St., Bangor (10)
Conneen, Lawrence W., 131 State St., Portland (3)
Cook, Aaron, 44 Main St., Waterville (6)
Coombs, George A., 283 Water St., Augusta (6)
Cordray, David P., Augusta (6)
Cornell, Robert C., Permanente Hosp., Broadway and McArthur Blvd., Oakland, Calif. (10)
Coulton, Donald, 326 State St., Bangor (10)
Cox, William V., 133 Court St., Auburn (1)
Cragin, Charles L., 831 Congress St., Portland (3)
Craig, D. Allan, 41 E. 42nd St., New York 17, N. Y. (10)
Crane, James W., Woodland (14)
Crowe, James H., 121 Main St., Ellsworth (5)
Crosby, Nathaniel H., Milo (11)
Cummings, George O., 47 Deering St., Portland (3)
Cuneo, Kenneth J., Kennebunk (15)
Curran, Edward L., 159 State St., Bangor (10)
Curtis, Harry L., 142 High St., Portland (3)
Curtis, John B., 10 High St., Milo (11)
Cutler, Lawrence M., 31 Grove St., Bangor (10)
Cyr, Gerald R., 50 Main St., Waterville (6)

## D

Dachslager, Philip, 269½ Water St., Augusta (6)
Dalrymple, Sidney C., 239 Walnut St., Brookline, Mass. (8)
Damon, Albert H., Limestone (2)
Daniels, Donald H., 73 Deering St., Portland (3)
Darche, Albert A., 782 Main St., Westbrook (3)
Dash, George E., Boothbay Harbor (8)
Davidson, David, 45 Deering St., Portland (3)
Davidson, Gisela K., 45 Deering St., Portland (3)
Davies, Lloyd G., Fryeburg (3)
Davis, Harry E., 169 State St., Portland (3)
Day, DeForest S., Wiscasset (8)
DeFoe, Garfield G., Dixfield (9)
Dennett, Carl G., Saco (15)
Dennis, Richard H., 33 College Ave., Waterville (6)
Dennison, Frederick C., Main St., Thomaston (7)
Derry, G. Hermann, Jr., 690 Congress St., Portland (3)
Desjardins, A. W., So. Bristol (8)
Devan, Thomas A., 10245—47th Ave., Corona, L. I., N. Y. (10)
Dietrich, Mary M., So. Brewer (10)
Dionne, Maurice J., 36 Cumberland St., Brunswick (3)
Dionne, William E., 21 Main St., Springvale (15)
Dixon, Walter G., 16 Deering St., Norway (9)
Doble, Eugene H., 6 Church St., Presque Isle (2)
Donahue, Clement L., 22 Main St., Caribou (2)
Donahue, Gerald H., Presque Isle (2)
Donovan, Joseph A., Houlton (2)
Dooley, Francis M., 53 Deering St., Portland (3)
Dore, Clarence E., 88 Pleasant St., Waterville (6)
Dore, Guy E., Guilford (11)
Dore, Kenneth E., Fryeburg (3)
Dorsey, F. Donald, 52 Deering St., Portland (3)
Dougherty, John F., 112 Front St., Bath (8)
Douphinett, Otis J., 763 Congress St., Portland (3)
Downing, J. Robert, 37 Storer St., Kennebunk (15)
Drake, Emerson H., 29 Deering St., Portland (3)
Drake, Eugene H., 58 Deering St., Portland (3)
Duffy, Wallace E., 100 Main St., Farmington (4)
DuMais, Alcid F., 125 College St., Lewiston (1)
Dunham, Carl E., 201 State St., Portland (3)
Dunham, Rand A., East Millinocket (10)
Dunn, Robert H., Veterans' Adm., Togus (6)
Dwyer, Clement S., 35 Maple St., Bangor (10)
Dyhrberg, Norman E., 331 Main St., Cumberland Mills (3)

## E

Earle, Ralph P., Vinalhaven (7)
Eastman, Charles W., Livermore Falls (4)
Ebbett, Penry L. B., Houlton (2)
Elkins, Harry, State Hosp., Augusta (6)
Elsemore, Dexter E., Dixfield (9)
Emanuel, Meyer, Veterans' Adm., Togus (6)
Emerson, W. Merritt, 131 State St., Bangor (10)
Emery, Clarence, Jr., 92 Essex St., Bangor (10)
Emery, Harry S., 721 Stevens Ave., Portland (3)
Eppinger, Ernest, West Buxton (15)
Ervin, Edmund N., 33 College Ave., Waterville (6)

## F

Fagone, Francis A., 312 Congress St., Portland (3)
Fahey, William J., 17 Frye St., Lewiston (1)
Farrell, Chalmers G., 2 Church St., Gardiner (6)
Faucher, Francois J., Grand Isle (2)
Fay, Thomas F., 284 Water St., Augusta (6)
Fellows, Albert W., 52 Ohio St., Bangor (10)
Ferguson, Franklin A., 9 Deering St., Portland (3)
Ferguson, Franklin F., 22 Arsenal St., Portland (3)
Finks, Henry B., 73 Deering St., Portland (3)
Fish, Nicholas, 38 Deering St., Portland (3)
Fisher, Dean, 300 Main St., Lewiston (1)
Fisher, Samson, Oakland (6)
Flanders, Merton N., 344 Main St., Lewiston (1)
Floyd, Albion E., New Sharon (4)
Floyd, Paul E., 2 Middle St., Farmington (4)
Fogg, C. Eugene, 794 Great Plain Ave., Needham, Mass. (3)
Fortier, Andre P., 260 Main St., Biddeford (15)
Foster, Albert D., Bay Shore Drive, Falmouth Foreside (3)
Foster, Thomas A., 131 State St., Portland (3)
Fox, Francis H., 83 West St., Portland (3)
Fox, S. Frank, 173 State St., Portland (3)
Freeman, William E., 107 Main St., Yarmouth (3)
Friend, John W., No. Anson (12)
Frohock, Horatio W., 10 Summer St., Rockland (7)
Frost, Robert A., 2 Goff St., Auburn (1)
Fuller, Edwin M., Jr., Hartford Hosp., Anes. Dept., Hartford, Conn. (8)

## G

Gagnon, Bernard H., Houlton (2)
Gauvreau, Horace L., 82 Pine St., Lewiston (1)
Geer, Charles R., 690 Congress St., Portland (3)
Geer, George I., Jr., 690 Congress St., Portland (3)
Getchell, Ralph A., 690 Congress St., Portland (3)
Geyerhahn, George, 47 Deering St., Portland (3)

Giddings, Paul D., 31 Western Ave., Augusta (6)
Giesen, Joseph H., Waterville (6)
Giguere, Eustache N., 109 Cedar St., Lewiston (1)
Gilbert, Walter J., Calais (14)
Gingras, Adolphe J., 99 Water St., Augusta (6)
Gingras, Napoleon J., 105 Water St., Augusta (6)
Glassmire, Charles R., 58 Deering St., Portland (3)
Goduti, Richard J., 704 Congress St., Portland (3)
Goldman, Morris E., 487 Main St., Lewiston (1)
Good, Philip G., 38 Deering St., Portland (3)
Goodof, Irving I., Waterville (6)
Goodrich, Blynn O., 165 Main St., Waterville (6)
Goodrich, John P., Boothbay Harbor (8)
Goodwin, Ralph A., 56 Denison St., Auburn (1)
Gordon, Charles H., 46 Deering St., Portland (3)
Gormley, Eugene G., Houlton (2)
Gottlieb, Julius, 210 College St., Lewiston (1)
Gould, Arthur L., Freeport (3)
Gould, George I., 76 Main St., Richmond (15)
Gousse, William L., 76 Main St., Fairfield (6)
Grant, Alton L., Jr., 133 Court St., Auburn (1)
Graves, Robert A., Fort Fairfield (2)
Gray, Philip L., So. Brooksville (5)
Greco, Edward A., 12 Pine St., Portland (3)
Green, Archibald F., 60 Elm St., Camden (7)
Greene, John A., 96 Congress St., Rumford (9)
Greene, Merrill S. F., 466 Main St., Lewiston (1)
Greenlaw, William A., Fairfield (12)
Gregory, Frederick L., 16 High St., Caribou (2)
Gregory, Philip O., Boothbay Harbor (8)
Griffiths, Eugene B., Presque Isle (2)
Gross, Leroy C., 19 Goff St., Auburn (1)
Grow, William B., Cent. Me. San., Fairfield (12)
Guite, L. Armand, 27 Main St., Waterville (6)

## H

Haas, Carl M., 31 Adam St., Biddeford (15)
Haas, Rudolph, 488 Main St., Lewiston (1)
Hall, Earl S., 696 Congress St., Portland (3)
Hall, Walter D., 407 Main St., Rockland (7)
Hall, Walter L. H., 50 N. 4th St., Old Town (10)
Ham, Joseph G., 690 Congress St., Portland (3)
Hamel, John R., 50 Deering St., Portland (3)
Hamilton, Virginia C., 900 Washington St., Bath (8)
Hammond, Walter J., State Hosp., Bangor (10)
Hanley, Daniel F., Brunswick (3)
Hanlon, Francis W., 46 Deering St., Portland (3)
Hanson, Henry W., Jr., Cumberland Center (3)
Hanson, John F., Machias (14)
Harkins, Michael J., 437 Main St., Lewiston (1)
Harlow, Edwin W., 177 Main St., Waterville (6)
Harvey, Thomas G., 164 Main St., Fort Fairfield (2)
Haskell, Alfred W., 142 High St., Portland (3)
Haskell, Harris B., 9 Bramhall St., Portland (3)
Hawkes, Richard S., 47 Deering St., Portland (3)
Hawkins, Donald B., Manheim Gardens—5A—Manheim at Schuyler St., Philadelphia 44, Penna. (8)
Hayden, Louis B., Livermore Falls (1)
Head, Owen B., 6 Washington St., Sanford (15)
Hedin, Carl J., 381 Ohio St., Bangor (10)
Heifetz, Ralph A., 173 State St., Portland (3)
Herring, Leon D., Winthrop (6)
Higgins, Everett C., 149 College St., Lewiston (1)
Higgins, George I., Newport (10)
Hill, Allison K., 113 Somerset St., Bangor (10)
Hill, Frederick T., 177 Main St., Waterville (6)
Hill, Howard F., 33 College Ave., Waterville (6)
Hill, Paul S., Jr., 176 Main St., Saco (15)
Hills, Louis L., 816 Main St., Westbrook (3)
Hinckley, Harry F., Jr., Dark Harbor (7)
Hirschberger, Celia, 44 Main St., Waterville (6)
Hirshler, Max, 85 Pine St., Lewiston (1)
Hogan, Chester F., Houlton (2)
Holland, Edward W., 28 Winter St., Sanford (15)
Holmes, George W., Belfast (13)
Holt, C. Lawrence, 29 Deering St., Portland (3)
Holt, Hiram A., Winter Harbor (5)
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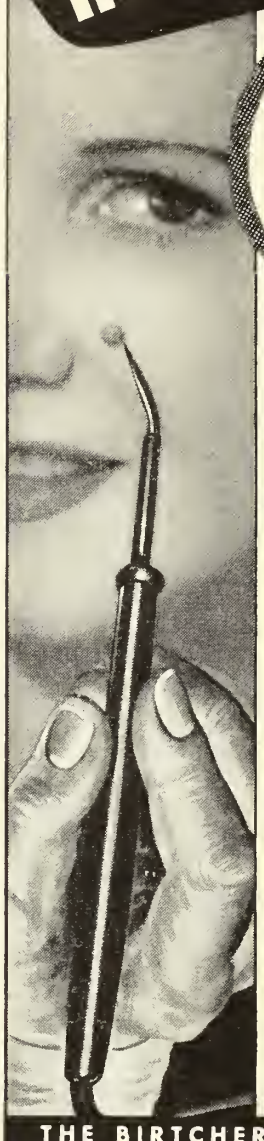
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# INCIDENCE, DIAGNOSIS AND TREATMENT OF DIABETES MELLITUS*

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## Incidence

Diabetes mellitus occurs much more frequently than had been suspected in the past. Its high incidence was first demonstrated strongly in 1943 when in a study of 45,650 selectees[1] we found that 0.8 per cent had glycosuria and 0.47 per cent diabetes mellitus. A subsequent study of an additional 69,088 selectees[2] showed that 2.1 per cent had glycosuria and 1.1 per cent diabetes. Although conducted on smaller scales, more recent Diabetes Detection Surveys confirm these findings. For example, in a small New England town[3] the incidence of diabetes was reported as 2 per cent of 3,516 persons. In a St. Louis survey[4] of 17,451 individuals, the frequency of glycosuria was 3.5 per cent and that of diabetes was 2.1 per cent.

One cannot depend on the cardinal symptoms for the diagnosis[5] of diabetes mellitus because comparatively few diabetic patients have polyuria, polydipsia and polyphagia. Furthermore, one should not wait for symptoms to develop before doing urine tests since so many persons have diabetes without any symptoms. In fact, only 24.6 per cent of the selectees[2] found to have diabetes knew they had it or glycosuria previous to their examination.

In the usual practice, it has been too often the custom to order a test of the fasting blood sugar and urine sugar if glycosuria is detected on routine examination. In those cases where the fasting blood sugar results are normal, it is assumed usually that the diagnosis of diabetes is eliminated. Such a procedure, no doubt, has led to the overlooking of many mild cases of diabetes. Furthermore, in hospitals, blood specimens for most chemical analyses are obtained in the fasting state, at which time it is more convenient to take the blood sugar.

To illustrate this point, I wish to cite three cases. In each one a trace of sugar was present in the urine during the day, and yet, the next morning the fasting blood sugar and urine were found to be perfectly normal. However, after the patient had ingested 100 Gm. of glucose in a glucose tolerance test, the blood sugar rose above normal and the urine contained sugar graded 1 to 4 plus as shown in Table 1.

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TABLE 1

CASES SHOWING THAT A NORMAL FASTING BLOOD SUGAR AND SUGAR FREE URINE DO NOT RULE OUT DIABETES

| Time | CASE 1 | | CASE 2 | | CASE 3 | |
|---|---|---|---|---|---|---|
| | Blood Sugar Mg. per 100 c.c. | Urine Sugar | Blood Sugar Mg. per 100 c.c. | Urine Sugar | Blood Sugar Mg. per 100 c.c. | Urine Sugar |
| Fasting | | | | | | |
| After Glucose | 106 | 0 | 90 | 0 | 120 | 0 |
| ½ Hour | 216 | 3 plus | 200 | 1 plus | 220 | 0 |
| 1 Hour | 298 | 4 plus | 240 | 3 plus | 270 | 3 plus |
| 2 Hours | 247 | 4 plus | 175 | 3 plus | 193 | 3 plus |

Another reason for the overlooking of glycosuria in some cases is the improper performance of the Benedict's test. Often a doctor in a hurry will heat the test tube in a flame for about a minute and then decide that the urine is sugar free if no reduction is observed within that time; yet, sugar may be detected on boiling the reagent longer.

Errors of this sort may be avoided by the use of Galatest, a rapid, simple method we have found successful in thousands of cases at the Induction Center and in private practice. The active ingredients of the reagent are sodium hydroxide and bismuth oxychloride. In this test a drop of urine is deposited on a small amount of Galatest powder placed on a paper and covering an area about ¼ inch in diameter. The powder will turn grey or black almost immediately depending on the amount of sugar present. The results, if they do not seem decisive, may be checked with Benedict's solution.

## DIAGNOSTIC PROCEDURE

When a patient is found to have glycosuria, it is important to determine whether or not he also has hyperglycemia. In cases with marked glycosuria and high blood sugar, the diagnosis of diabetes is simple and a sugar tolerance test unnecessary. On the contrary, if there is only a trace of sugar in the urine and normal or borderline blood sugar, the sugar tolerance test becomes essential to determine the significance of the glycosuria. It is of special value, too, in the recognition of renal glycosuria although here diabetic therapy is not required.

## TYPES OF SUGAR TOLERANCE TESTS IN DIAGNOSIS

In general there are 3 types of glucose tolerance tests.[6] One is the standard oral glucose tolerance test in which 100 Gm. of glucose are taken orally after an overnight fast and the blood sugar is determined one-half, one, two, and at times three hours after the ingestion of the glucose. The second is the Exton-Rose Method[7] in which the patients are given 50 Gm. of glucose after determination of the fasting blood sugar. At the end of one-half hour a second blood sugar is taken and an additional 50 Gm. of glucose are given. When another half-hour passes, a third blood sample is obtained. In the case of the diabetic, the third blood sugar will be definitely higher than the second. As for the nondiabetic individual, the third blood sugar will be lower or only possibly slightly higher than the second. The third type is the intravenous glucose method in which a given amount of glucose is injected intravenously and the blood sugar is determined at certain intervals after the injection of the sugar.

### *Intravenous Glucose Tolerance Test*

Numerous investigators have experimented with this method, but considerable confusion has arisen from the results because of the varying strengths and amounts of solution used and the varying time taken for its injection.

In an excellent presentation of this subject Tunbridge and Allibone[8] have described their results. Their procedure was to inject into the vein in 3 minutes 92 c.c. of a 30 per cent solution of dextrose dissolved in water. Blood samples were taken at intervals of 1½ to 7½ minutes for at least 60 minutes after the end of the injection. The blood taken 1 minute after the injection gave the maximum reading for the blood sugar, which in the normal subject was approximately 350 mg. and returned to the pre-injection level within 60 minutes. In the normal person, glycosuria varied in amounts from .25 to 2.4 Gm. In the diabetics, on the other hand, the curves showed abnormal responses inasmuch as the blood sugar level dropped comparatively little after the injection of the glucose. Illustrations of these curves are given in Chart 1.

I would use the intravenous dextrose tolerance test for special research problems or in the case with disturbance in absorption in the gastrointestinal tract.

### *Standard Oral Test*

For general practical purposes I would recommend the standard oral glucose tolerence test, which, if carefully performed, is accurate enough to be diag-

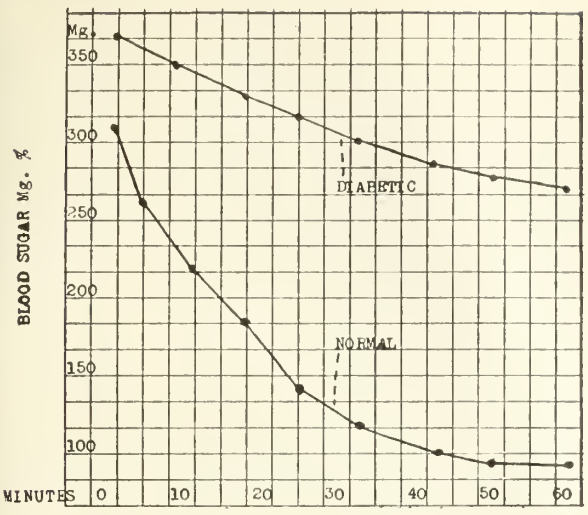



Chart 1.—Blood sugar curves following the intravenous injection in three minutes of 27.6 Gm. of glucose in a normal person and in a diabetic patient with a fasting blood sugar of 92 mg.

nostic of diabetes. The test should be done under controlled conditions. Restriction of the diet may cause a normal person to show a diabetic response. Consequently, a patient should be on an unrestricted diet for about 3 days prior to the test.

In adults, I have used chiefly the standard oral glucose tolerance test giving 100 Gm. of glucose. In children, I have prescribed 50 Gm. of glucose to those who weighed less than 75 pounds and 75 Gm. to children who weighed more than 75 pounds. Various authors believed that satisfactory tolerance curves for diagnostic purposes can be obtained with 50 Gm. of glucose as well as with 100 Gm., even in adults. This may be true to a large extent. But, in the normal person, the larger amount of sugar may prolong the hyperglycemia obtained, and in the diabetic both a higher level and a prolongation of the hyperglycemia may be produced.

Criteria:—The criteria for interpreting the normal sugar tolerance are difficult to fix because of the variable blood sugar curves reported for so-called nondiabetic persons. Gray[9] found that the average fasting blood sugar in 300 apparently healthy persons was 90 mg.; the average values after ingestion of 100 Gm. of glucose was 140 mg. in ½ hour; 120 mg. in 1 hour, 110 mg. in 2 hours, and 90 mg. in 3 hours. Others have recorded higher values for the normal sugar tolerance curve even with a maximum peak of 180 mg. Some believe that the normal values usually do not exceed 140 mg. per cent although the diagnosis of diabetes is not justified unless a value of 170 mg. per cent is reached.

My experience, based on the study of approximately 115,000 consecutive selectees, is reviewed here referring particularly to the second group of 69,088 selectees aged 18 to 37 years among whom 1.1 per cent were considered diabetic.

In the study of selectees, the sugar tolerance tests were called normal if the fasting blood sugar level was below 130 mg. per cent, if the peak of the blood sugar did not exceed 165 mg. per cent in one-half or one hour after the ingestion of the glucose and if no sugar was found in the urine at this level.

Potential diabetes was diagnosed when the subject had a blood sugar concentration of approximately 165 mg. per 100 c.c. in one-half or one hour after the ingestion of the glucose with some or all of the urine specimens containing sugar.

Diabetes was diagnosed when the blood sugar concentration exceeded 170 mg. in one-half or one hour and some or all of the urine specimens contained sugar after the ingestion of the glucose, even though the fasting blood sugar was normal and the fasting urine was sugar free. No doubt some of these were borderline cases. I think it is best and safest to consider persons with peaks in the blood sugar curves of 165 mg. and with sugar in the urine as potentially diabetic even though there are no symptoms. Overlooking these might be like overlooking cases of minimal tuberculosis found on routine X-ray examinations of the chest in persons without symptoms.

Typical sugar tolerance curves of the diabetics in this group are shown in Charts 2 and 3.

In most of the cases considered to have diabetes the fasting urine specimens were sugar free and the fasting blood sugar was normal. Yet, the peak of the blood sugar curve ranged from 170 to 385 mg. in one-half or one hour after the ingestion of the glucose, and some or all of the postprandial urine specimens contained sugar. The blood sugar in 2 hours ranged from 80 to 225 mg. If one were to have judged this group by the fasting urine and blood sugar tests, the diagnosis of diabetes would not have been made.

The amount of glycosuria discovered on routine examinations did not always indicate the severity of the diabetes because there were cases in which sugar graded 1 plus had been found in the urine with the blood sugar curve later indicating moderately severe diabetes and cases in which sugar was graded 3 or 4 plus with the curve later showing mild diabetes.

### *Other Factors in Diagnosis*

There are several factors, such as thyroid disturbances, infections, liver disease, family history, nationality, physical inactivity, previous use of insulin and diet, which should be taken into consideration in attempting to interpret some of the borderline sugar tolerance curves.

Family History:—Diabetes is much more common in relatives of diabetics than in the general popula-

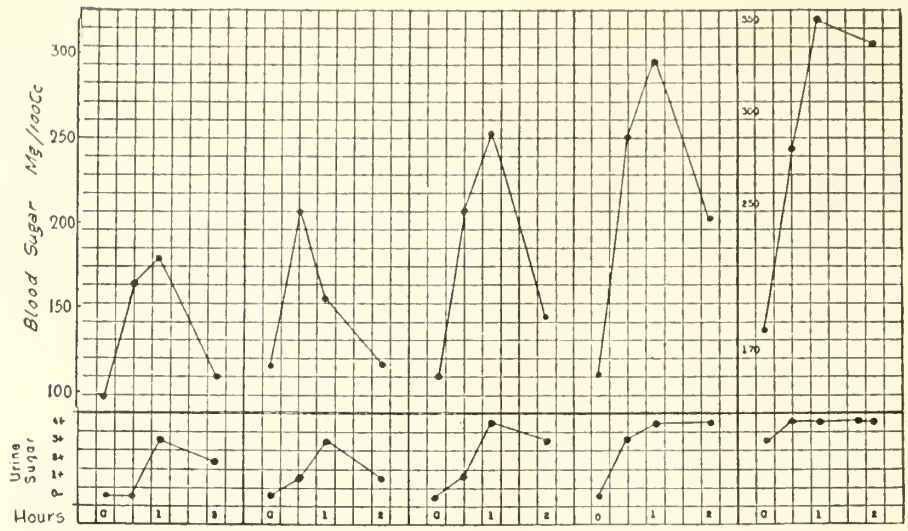



Chart 2.—Sugar tolerance after ingestion of 100 Gm. of glucose in selectees found to have diabetes.

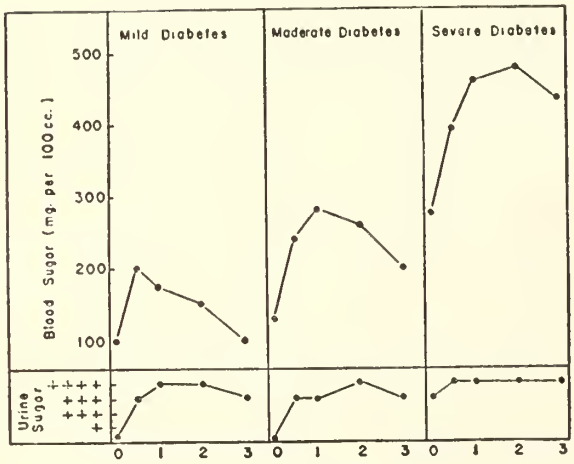



Chart 3.—Characteristic results in mild, moderate and severe diabetes mellitus at hourly periods after the ingestion of 100 Gm. of glucose.

tion. In a Florida survey[13] of 736 blood relatives of diabetics an incidence of 4.1 per cent of previously undiagnosed diabetes was found. In our studies of selectees 43.7 per cent of those who knew they had diabetes or glycosuria gave a family history of diabetes compared with 5.2 per cent of family history of diabetes in the nondiabetics. Certainly, a borderline sugar tolerance curve and a family history of diabetes would cast more suspicion on this curve as being diabetic.

Nationality:—As our study of selectees indicates, there are certain nationalities in which the frequency of diabetes is much more common than in others. Here, too, the nationality of the individual would affect somewhat the interpretation of the results of the borderline cases.

Although it has been proverbial that Jews have the highest incidence of diabetes, we found that the incidence of diabetes among this group was the same as that in the controls. Our investigation shows, however, that the French-Canadians, the Irish and the English had the highest incidence of diabetes, the Old Americans the lowest as compared with the controls. This is strongly illustrated in Table 2. Wilkerson and Krall[3] in their survey have also confirmed the

TABLE 2

INCIDENCE OF NATIONALITY IN 332 DIABETICS

| Nationality | 332 Diabetics Per Cent of Cases | 222 Newly Found Diabetics Per Cent of Cases | Control Group 7,350 Selectees Per Cent of Cases |
|---|---|---|---|
| Canadian-French | 18.4 | 17.1 | 9 |
| Irish | 22.3 | 24.3 | 11 |
| Old American | 13.3 | 14.0 | 45 |
| Italian | 6.9 | 7.2 | 10 |
| English | 11.5 | 11.3 | 5 |
| Jewish | 5.8 | 4.1 | 6 |
| Portuguese | 6.6 | 7.7 | 5 |
| Other Nationalities | 15.3 | 14.3 | 9 |

fact that the French-Canadians and English have the highest incidence of diabetes.

Age:—One usually thinks of diabetes as occurring with special frequency among older persons, particularly between the ages of 50 and 60. The severe cases are expected among the young and the mild cases among older persons. Our study emphasized the need for looking for diabetes in the young because of the discovery of a large number of mild cases of diabetes among them. It appears that in the past young persons did not have frequent urine analysis. Severe diabetes in this group was recognized chiefly because symptoms were present, whereas mild diabetes in such individuals was not discovered because symptoms were absent. This disease had been recognized more readily in the older persons because they were examined more frequently for various complaints.

In a study of the age of onset of diabetes in 100 known cases it was of particular interest to note the large number that developed the disease at an early age, even in infancy. Whereas in the newly discovered diabetics 46.2 per cent were aged 31 to 37 years; of the known diabetics only 12.7 per cent had the onset of this disease during this age period. Furthermore, one would hardly believe that 42.7 per cent of these known diabetics had the onset of the disease at ages varying from 2 to 17 years. This illustrates how clearly the cumulative effect of age is attained in later years of life.

Renal Glycosuria:—The sugar tolerance test is a most important asset in the diagnosis of renal glycosuria which has been regarded as a rare disease. In our study[12] it occurred in 33 of 367 cases of Mellituria. Renal glycosuria is a benign condition characterized by an excretion of glucose in the urine in the presence of a normal blood sugar as shown in Chart 4.

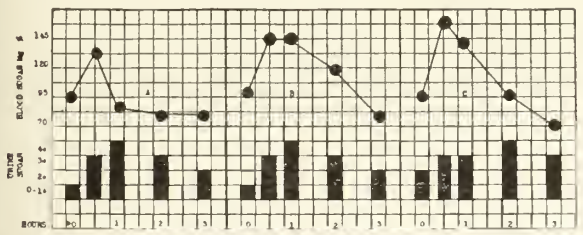


Chart 4.—Illustrations of sugar tolerance results obtained in renal diabetes following the ingestion of 100 Gm. of dextrose. A represents 13 cases, B 11 cases and C 9 cases.

It is important to recognize renal glycosuria because diabetic treatment is unnecessary in these cases, and it is possible that the restriction of carbohydrate may be harmful, particularly in those thin, underweight persons with this condition. It may be well to give an increased amount of carbohydrate in the diet to make up for its loss in the urine. There are no symptoms referable to this disease.

Previous Use of Insulin:—The previous use of insulin in nondiabetic persons may cause a temporary loss of tolerance for carbohydrate. I[10] found this to be true in a group of normal thin people made to gain weight with insulin. This is shown in Chart 5.

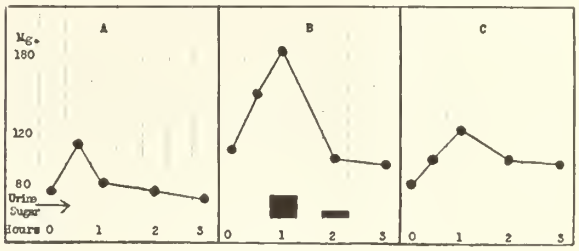



Chart 5.—Illustration of blood sugar curves resulting from the ingestion of 100 Gm. of glucose by 4 thin people; A, before; B, during and C, after insulin treatment. In B, .4 Gm. and .1 Gm. sugar were excreted in the urine one and two hours respectively after taking glucose.

The cause of this temporary decrease in tolerance may result from a temporary suppression of the pancreatic function due to a rested pancreas or an inhibition of the normal islet secretion in compensation for the excessive amounts of insulin present following its injection.

Physical Inactivity:—Other conditions are said to diminish sugar tolerance:—old age, and diseases such as tuberculosis, hypertension, nephritis, arthritis, neurological diseases and blindness.

There appears to be one factor that is common to most of these conditions, namely, physical inactivity or diminished activity. It has been recognized that exercise increases the utilization of dextrose. In contrast, there has been little investigation to show the effect of physical inactivity or the effect of prolonged bedrest on the carbohydrate metabolism in nondiabetic persons. This point should be of interest to doctors in any specialty because all of us see patients confined to bed for various periods.

I[11] studied this problem in children and in adults, aged 11 to 92 years, by observing whether the carbohydrate metabolism was disturbed in a group of nondiabetic patients who had been confined to bed for relatively long periods of time, several months to eighteen years. The patients had such diseases as tuberculosis, progressive muscular dystrophy, hemiplegia, multiple sclerosis, arthritis, hypertension, gout, myocarditis, Parkinson's Disease, amputation of both legs and fracture of hips or legs. In general, there was a diminished sugar tolerance in nearly all of them as shown in Charts 6 and 7.

Some patients who had been confined showed an improved tolerance after they had been ambulatory from 2 to 6 months as illustrated in Chart 8.

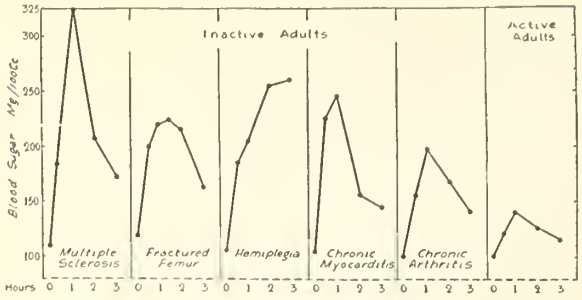



Chart 6.—Illustrations of blood sugar curves following the ingestion of 100 Gm. of dextrose for 63 nondiabetic adults with various diseases who had been confined to bed from one month to eight years.

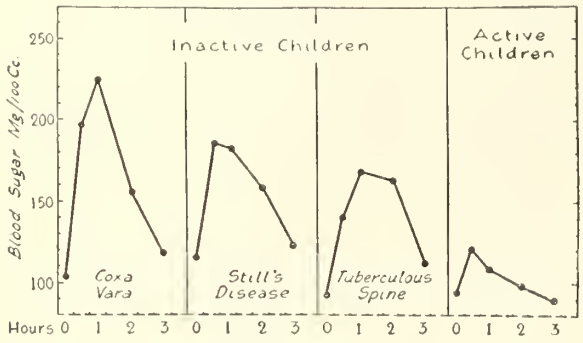



Chart 7.—Characteristic blood sugar curves following the ingestion of dextrose for 16 nondiabetic children with certain diseases who had been confined to bed from six months to thirteen years, compared with typical sugar tolerance in active children.

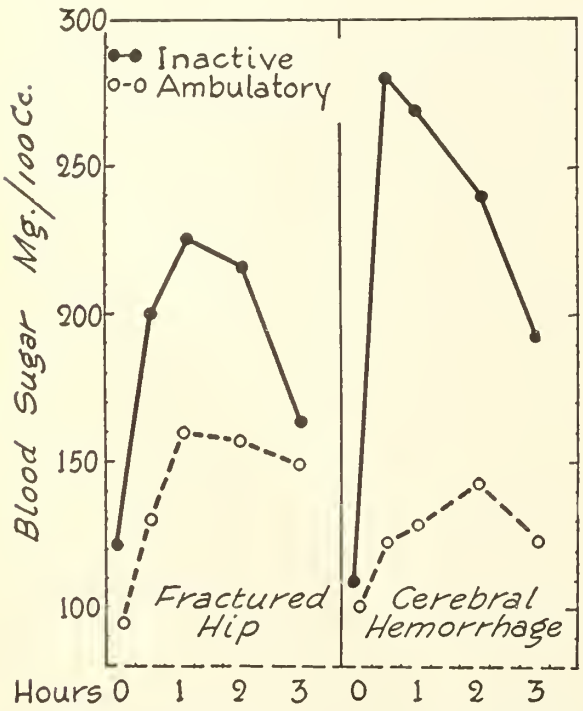



Chart 8.—Comparison of results of sugar tolerance tests of some patients when they were confined to bed and after they had been ambulatory for several months.

## Treatment of Diabetes

Simplicity in treatment is the goal. Now a diabetic patient can eat just about the same as anyone else, perhaps, with more discretion and judgement but without being different and isolated. Hospitalization and elaborate equipment are usually unnecessary in the care of the uncomplicated cases. Such individuals may be treated properly in the doctor's office. In general, I believe that the diabetics who do best are those who take best care of themselves.

The general treatment of diabetes may be considered under a number of headings as follows:

1. Prevention of Diabetes.
2. Education and Recognition of Early Cases.
3. Diet.
4. Insulin Preparations.
5. Exercise.
6. Prevention and Treatment of Complications.
   a. Infections and Gangrene.
   b. Coma.

### *Prevention*

In the treatment of diabetes there is a great field for the practice of preventive medicine, particularly by the general practitioner. It is he who usually has the first opportunity to examine the patient, make a urine analysis and discover diabetes. Special attention should be given to individuals of certain nationalities, to those with a family history of diabetes and to the potential or borderline cases of diabetes. Proper care of diet, weight and physical activity of these persons may prevent or delay the onset of true or severe diabetes with symptoms. Normal or somewhat subnormal weight should be the aim of potential diabetics or relatives of diabetics. Furthermore, to avoid hereditary transmission it is well to advise two diabetics not to marry each other and have children and also to advise diabetics or a child of a diabetic not to marry into a diabetic family.

### *Education*

Education of the public concerning the importance of recognizing diabetes is most essential. It is much easier to find diabetes in relatives of diabetics than in the general population. This fact was shown in our studies and in those of Ford,[13] who found an incidence of 4.1 per cent of previously undiagnosed diabetes in 736 blood relatives of diabetics. It is the hope that the early and borderline cases of diabetes may be discovered and treated before they develop into more severe ones. As for the diabetic patient himself, education is most important in avoiding complications and prolonging his life.

### *Diet*

Much advance has been made in prescribing diet to patients. Nowadays, the diabetic diet is much more

liberal than formerly and contains green vegetables, fruits, eggs, bacon, meat, fish, butter, milk, cream, cheese, cereals, uneeda biscuits and even bread and potatoes. Table 3 gives the carbohydrate, protein and fat content of common diabetic foods.

TABLE 3

THE CARBOHYDRATE, PROTEIN AND FAT CONTENT OF COMMON DIABETIC FOODS*

| Foods | Amount | | Food value in Gm. | | | |
|---|---|---|---|---|---|---|
| | Household Measures | Weight in Gm. | Carbohydrate | Protein | Fat | Calories |
| Vegetables, 3 per cent | 1 sauce dish | 150 | 5 | 3 | 0 | 32 |
| Vegetables, 6 per cent | 1 sauce dish | 150 | 10 | 3 | 0 | 52 |
| Fruit, 10 per cent | 1 orange or ½ grapefruit | 100 | 10 | 0 | 0 | 40 |
| Cooked cereal | ½ cup | 120 | 24 | 4 | 0 | 112 |
| Dry cereal | 1 cup | 20 | 15 | 1 | 0 | 64 |
| Shredded wheat | 1 biscuit | 30 | 23 | 3 | 0 | 104 |
| Uneeda biscuits | 2 crackers | 12 | 10 | 1 | 1 | 53 |
| Bread | 1 slice | 30 | 18 | 3 | 0 | 84 |
| Potato | 1 medium | 120 | 24 | 4 | 0 | 112 |
| Milk | 1 glass | 200 | 10 | 7 | 8 | 140 |
| Cream, 40 per cent | ½ cup | 120 | 4 | 4 | 48 | 464 |
| Cream, 20 per cent | ½ cup | 120 | 4 | 4 | 24 | 248 |
| Butter | 1 teaspoonful | 5 | 0 | 0 | 4 | 36 |
| Oil (except mineral oil) | 1 tablespoonful | 15 | 0 | 0 | 15 | 135 |
| Cheese (American) | 1 inch cube | 30 | 0 | 8 | 11 | 131 |
| Bacon (crisp) | 4 lean strips | 30 | 0 | 5 | 15 | 155 |
| Meat, fish or chicken | 1 medium serving | 90 | 0 | 21 | 9 | 165 |
| Egg | 1 | 45 | 0 | 6 | 6 | 78 |

* 1 Gm. protein = 4 calories. 1 Gm. carbohydrate = 4 calories. 1 Gm. of fat = 9 calories.

Nearly all given figures for carbohydrates, protein and fat content of various foods are approximate and represent average values with considerable individual variations.

It is well to have tables with the composition of various goods so that the foods may be substituted and diets balanced, decreased or increased as necessary. Table 4 classifies common fruits and vegetables according to their carbohydrate content.

This diet is prescribed commonly when a diabetic first is seen in the office or admitted to the hospital until his needs have been determined. It contains about all the daily vitamin requirements. However, since diabetics are frequently subject to symptoms resembling Vitamin B deficiency, it is well to supplement the diet with multivitamins, especially Vitamin B. The diet is then regulated to meet each individual's requisites according to the occupation, caloric needs, and physical status; a restricted diet for the obese patient, a liberal one for the thin person and additional calories for the laborer.

*Insulin*

The usual reasons for prescribing insulin treatment to diabetics are malnutrition, weakness, infection, acidosis, or the persistence of sugar in the urine after the patient has attempted to eat an adequate diet without the help of the drug. Not all diabetic patients require insulin, and many mild cases do well on diet alone. Some physicians suggest that all diabetics take insulin. Diabetic patients should be taught how to measure and inject insulin.

There are several types of insulin now in use: quick acting regular and crystalline insulin; slow acting protamine zinc insulin; intermediate acting globin insulin and more recently NPH-50 insulin. Their relative effects are shown in Chart 9.

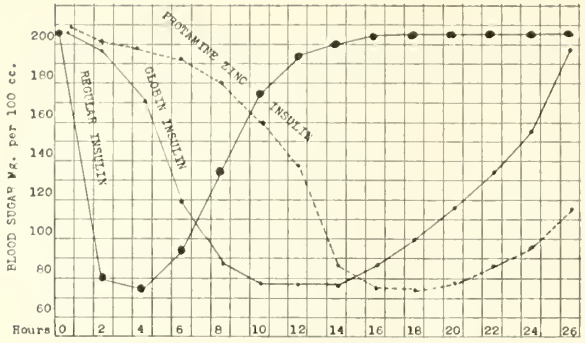



Chart 9.—Illustrations of the effect of subcutaneous injection of regular insulin, protamine zinc insulin and globin insulin on the blood sugar level of a fasting diabetic patient.

## TABLE 4

### Carbohydrate Content of Fruits and Vegetables*

| 3% | 6% | 9% |
|---|---|---|
| Asparagus, F, C, | Beans, snap | Applesauce, C, WP |
| Beans, green, C | Beets, C | Apricots, C, WP |
| Beans, waxed, C | Blackberries, C, WP | Beets |
| Beet greens | Dandelion greens | Blackberries |
| Broccoli | Eggplant | Brussel sprouts |
| Cabbage | Gooseberries, C, WP | Carrots |
| Cauliflower | Muskmelon | Cherries, WP |
| Celery | Cantaloupe | Cranberries |
| Cucumbers | Honeydew | Currant juice |
| Lettuce | Okra | Gooseberries |
| Radishes | Peaches, C, WP | Grapefruit |
| Rhubarb, F, C, WP | Peppers, green and red | Lemons |
| Sauerkraut, F, C | Plums, C, WP | Limes |
| Spinach, F, C | Pumpkin | Loganberries, C, WP |
| Squash, summer | Pumpkin and squash, C | Onions |
| Strawberries, C, WP | Squash, winter | Pears, C, WP |
| Tomatoes, F, C | Strawberries | Peas, very young |
| Tomato juice, F, C | Tomato puree, C | Peas, C |
| | Turnips | Raspberries, C, WP |
| | Watermelon | Tangerines |
| 12% | 15% | 18% |
| Apple juice | Apples | Beans, baked |
| Apricots | Blueberries, F, C, WP | Beans, red kidney, C |
| Beans, lima, C | Corn, sweet, very young | Cherries, sweet |
| Mulberries | Figs, C, WP | Corn, C |
| Oranges | Grapes | Crab apples |
| Orange juice | Loganberries | Figs |
| Peaches | Nectarines | Grape juice, unsweetened |
| Pineapple, F, C, WP | Parsnips | Potatoes |
| Pineapple juice, F, C | Pears | Succotash, C |
| Plums | Peas, medium | |
| Prunes, C, WP | | |
| Raspberries | | |

* Food Values according to the U. S. Department of Agriculture.
WP, water packed canned products; C, canned; F, fresh.

Gone are the days of elaborate food scales, weighing and turmoil for the diabetic patient. The diet is simplified and prescribed in terms of household measures. It is important to give the diabetic a diet which is not only palatable and practical, but also meets his needs. Today a standard or a diabetic house diet consists of approximately carbohydrate, 150 grams; protein, 80 grams; and fat, 80 grams. An illustration of this diet is shown in Table 5.

TABLE 5

A Basic Diet

150 Grams Carbohydrate; 80 Grams Protein; 80 Grams Fat: 1640 Calories

| | Household Measures | Weight |
|---|---|---|
| BREAKFAST | | |
| Orange or | 1 | 100 Gm. |
| Grapefruit or | ½ | 100 Gm. |
| 10% Fruit Equivalent | | |
| Bread or | 1 slice | 30 Gm. |
| Dry Cereal | 1 cup | 20 Gm. |
| Butter | 2 teaspoons | 10 Gm. |
| Egg | 1 | |
| Cream | 2 tablespoons | 30 Gm. |
| Tea or Coffee | | |
| DINNER | | |
| Meat, Fish or Chicken | 1 serving (4 ounces) | 120 Gm. |
| Vegetable, 6% | 1 saucedish | 150 Gm. |
| Vegetable, 3% | 1 saucedish | 150 Gm. |
| Potato | 1 small | 100 Gm. |
| Orange or | 1 | 100 Gm. |
| Grapefruit or | ½ | 100 Gm. |
| 10% Fruit Equivalent | | |
| Bread | 1 slice | 30 Gm. |
| Tea or Coffee | | |
| SUPPER | | |
| Fish or Cheese or | 2 ounces | 60 Gm. |
| Eggs | 2 | |
| Vegetables, 6%, or | 1 saucedish | 150 Gm. |
| Vegetables, 3% | 2 saucedishes | 300 Gm. |
| Bread | 1 slice | 30 Gm. |
| Butter | 2 teaspoons | 10 Gm. |
| Milk | 1 glass | 200 Gm. |
| Orange or | 1 | 100 Gm. |
| Grapefruit or | ½ | 100 Gm. |
| 10% Fruit Equivalent | | |
| Tea or Coffee | | |
| BEDTIME | | |
| Milk | 1 glass | 200 Gm. |
| Uneeda Biscuits | 2 | |

When an increase in diet to C 200, P 90 and F 100 is indicated add to the above diet the following:
One serving of 10% fruit at noon time.
Two slices of bread (cereal in the morning, potato at night).
Two level teaspoons butter (one teaspoon at breakfast, one teaspoon at supper time).
Four tablespoons cream (at breakfast).
One serving of 6% vegetables (at night time).
Saccharine may be taken as desired.
When fluids are forced, broth, tea or coffee may be used as much as needed.

Recently you have heard of a modified protamine insulin[14] called NPH-50, which is not available for general clinical use because it is still in the investigational state. Its name is derived as follows: N for neutral reaction; P for protamine; H for Hagedorn improvement; 50 for the addition of 0.50 mg. of crystallized protamine for every 100 units of insulin. The blood sugar lowering effect of this insulin is relatively fast because it begins about 2 hours after its administration. It has a maximum blood sugar lowering action of about 10 to 20 hours after its administration and duration of action of about 24 to 28 hours. In White's experience[14] NPH-50 insulin was desirable for the treatment of severe labile diabetes and was as successful as separate injections of crystalline and protamine zinc insulins in 95 per cent of the severe cases. On the other hand, MacBryde[15] and Ricketts[16] observed that NPH-50 insulin had a good intermediate effect resembling a 2:1 mixture but was not a sufficient improvement over globin insulin, which is now available, to make it advisable for widespread use.

At present I give protamine zinc insulin before breakfast to nearly all patients requiring insulin and supplement it when necessary with regular or crystalline insulin. Both types of insulin are given in the morning before breakfast, and usually no more insulin is needed for the rest of the day after the patient has been regulated.

The doctor must use his judgement when insulin is administered first to a patient. The following procedure is suggested. In a new case, 15 units of protamine zinc insulin are injected, and the progress noted. If the glycosuria disappears, the dose is reduced to an amount adequate for the maintenance of a sugar-free urine. Should the glycosuria persist, the same dose is repeated the following morning. If improvement is slow, the dose is increased until 40 units or even more are given before breakfast. In cases where the glycosuria persists a supplementary dose of insulin is administered either before breakfast or at other times during the day when necessary. The goal is the regulation of the diabetes so that only one dose of insulin before breakfast is required.

### *Insulin Mixtures*

Theoretically, an insulin mixture is any mixture of any type of insulin. Practically, it is a mixture of regular or crystalline insulin with protamine zinc insulin in a bottle or syringe. For example, a 2:1 or 3:1 mixture indicates 2 or 3 parts of regular or crystalline insulin to 1 part of protamine zinc insulin.

Much investigation has been done on this subject. Colwell[17] believes that 85 per cent of diabetic patients requiring protamine zinc insulin supplemented with regular or crystalline insulin may be satisfactorily regulated on a single dose of a 2:1 mixture and that 97 per cent can be well regulated using some insulin mixture. Rohr and Colwell[17] obtained similar results with this mixture or with globin insulin. The advantage of insulin mixtures is that only one injection is needed in patients who might otherwise require protamine zinc insulin supplemented with regular or crystalline insulin. A disadvantage is the difficulty encountered when the patient attempts to mix the two insulins in a syringe before injection. These mixtures are stable for several months. Peck[18] found that mixtures made of equal parts of insulin and protamine zinc insulin do not show a significantly different action from that obtained when using protamine zinc insulin alone, whereas combinations containing more than 3 parts of insulin to 1 part of protamine zinc insulin result in too short a time activity and too great an intensity of effect during the day. From clinical experience he found 2:1 or 3:2 mixtures the most useful combinations.

In regulating the diet of a patient on insulin, the basic or standard house diet is given in the proportion of one-fifth in the morning, two-fifths at noon, two-fifths at night, and a lunch before bed in order to combat the tendency toward a low nocturnal blood sugar with the long acting insulin.

Patients must be taught the signs of an insulin reaction or insulin shock and the method of combating it. They should take carbohydrate such as candy or orange at the earliest sign of an insulin reaction so that it will not progress into a severe one, and also carry with them a lump of sugar or a piece of candy for this purpose. It is well to advise diabetics taking insulin of the dangers of an insulin reaction while driving an auto or in aviation or while they are engaged in a hazardous occupation so that they may take proper care to prevent accidents.

### *Exercise*

It has been shown that exercise lowers the blood sugar in the normal person and that prolonged physical inactivity decreases the sugar tolerance.[11] The prescription of exercise along with diet and insulin is now a standard practice in the routine treatment of diabetes. However, for exercise to be effective the patient needs to be under control with a sufficient amount of endogenous or exogenous insulin. At times an insulin reaction or hypoglycemia may follow exercise in a controlled diabetic.

### *Complications*

The main complications of diabetes are cardiovascular diseases, infections and coma. It is not the plan to discuss all of them here. However, several, particularly infections and gangrene of the extremities and coma are often preventable. I wish to discuss gangrene and coma.

### *Gangrene*

In 1926, Fitz and I,[19] studied the grangrene cases at the Peter Bent Brigham Hospital and found that trauma of some sort with super-imposed infection brought on gangrene in 65 per cent of them. We were impressed by the number of patients who developed gangrene as a result of very minor traumas, such as cutting corns, paring toenails too closely, neglecting blisters caused by wearing new or too tight shoes and the application of strong antiseptics to a minor wound. Even nowadays this situation occurs with similar frequency. Gangrene developed with greater frequency during the cold months of the year than during the warm months. Diabetic patients should be taught that the avoidance of minor injuries, of dirt and of cold hands and feet are important prophylactic measures. Now in some of the large hospitals a trained podiatrist helps educate diabetics in the care of their feet.

### *Diabetic Coma*

Diabetic coma is ordinarily preventable. Patients must be taught to test the urine, to take a proper amount of insulin, not to overeat, to avoid infections and to consult the doctor immediately when any complications arise. They should not omit insulin without the doctor's advice. I have seen patients omit insulin when they didn't feel well for various reasons and develop coma. Patients in diabetic coma should not die except possibly when they are in extremis or have some cardiovascular, infectious or other complication or untreated hypopotassemia.

The differential diagnosis of diabetic coma is essential and the following should be considered: insulin hypoglycemia, cerebral hemorrhage, uremia, meningitis and even an overdose of sedatives. In practically all cases a diagnosis can be made readily on the basis of the history, physical examination and urine and blood analyses. In rare cases of diabetic coma, I have seen the white blood count increased to as much as 90,000 and then decreased to normal upon the patient's recovery.

A history should be obtained to determine whether or not the patient had been taking insulin. Insulin coma must not be mistaken for diabetic coma. If the patient is unable to void, a catheterized urine specimen should be tested immediately for sugar and acetone. If glycosuria and acidosis are present, regular insulin should be administered immediately in a dose of 50 to 75 units. Then the blood sugar and the $CO_2$ combining power should be determined. Most coma cases require about 200 to 400 units of insulin during the first 24 hours, others much larger amounts. The following doses of insulin may be given during the treatment of coma according to the blood sugar level:

100 units if blood sugar is 400 to 500 mg.
200 units if blood sugar is 600 to 1000 mg.
300 units if blood sugar is 1000 mg. or over.

Complications should be observed and treated accordingly. If there is evidence of collapse, insulin should be administered intravenously. Circulatory stimulants are rarely required, but if necessary, caffeine or adrenalin may be given. Patients should be kept warm and burns avoided.

Dehydration is a striking feature in diabetic coma and consequently 1500 to 2000 c.c. of normal saline should be given promptly but slowly, particularly in elderly patients. If indicated, this amount may be repeated. The usual case does not require more than about 3000 c.c. in the first 24 hours. Rare cases are reported in which as much as 11 liters of fluids have been given in the first 24 hours. I do not give or recommend glucose intravenously in the treatment of diabetic coma. Gastric lavage should be carried out if the stomach is dilated.

The urine should be tested every 2 hours and if sugar and acidosis are present 50 to 100 units of insulin should be given. The dosage is varied according to the severity of the acidosis and the response to treatment.

Repeated blood sugar and $CO_2$ combining tests should be made. In 3 hours if the blood sugar is increasing, 100 to 200 units of insulin should be given.

In 6 hours if the patient is improving fluids, such as 4 ounces of broth, orange juice, tea, coffee or ginger ale, may be given by mouth as tolerated. If there is nausea or vomiting, fluids by mouth should be omitted for about 12 hours. Later, the patient may take soft foods such as oatmeal gruel or milk.

In 6 to 24 hours if patient is improving, insulin may be given according to tests as follows:

20 to 30 units for 4+ sugar.
15 to 20 units for 2+ to 3+ sugar.
0 units for 0 to 1+ sugar.

The urine volume should be observed. The blood chloride is lowered frequently in coma and subsequently the urinary secretion has ceased in certain cases. In 3 such cases of anuria Root[20] injected 50 to 130 c.c. of 10 per cent salt solution intravenously and induced urination and a decrease in nitrogen retention.

On the second day the patient should be given a diet of C 100-150, P 50, F 50 and protamine zinc insulin supplemented with regular insulin as necessary. Subsequently the diet should be regulated according to the patient's needs.

In general I feel that doctors tend to give too little rather than too much insulin during diabetic coma.

Case Report:—The following report of a patient treated in a small city hospital for diabetic coma illustrates some of the features discussed.

The patient, a 42-year-old married woman, was admitted to the hospital at about 9 o'clock on a Sunday morning in a deep coma, from which she could not be aroused. The history obtained showed that she had had diabetes for about 10 years and took 30 units of insulin daily. For two days before her admission, this woman had taken no insulin because she thought it did her no good.

The physical examination was not remarkable except for the state of coma, moderate dehydration, Kussmaul breathing, dry tongue and soft eye balls. The urine showed sugar 4 plus and diacetic acid 4 plus and 25 units of insulin were given.

The blood sugar was 970 mg. at 11.00 A. M. and then 50 units of insulin were given along with 1500 c.c. normal saline intravenously. At 2.00 P. M. the urine continued to show marked glycosuria and again 50 units of insulin were given. The coma persisted and the doctors felt the patient would not recover and that she was insulin resistant because she did not respond to 125 units of insulin.

I was consulted at about 5.00 P. M. of that day and advised 200 units of insulin every 2 hours if the urine contained much sugar and diacetic acid. Although the doctors were terrified at this dose, the patient received the insulin every 2 hours, and the blood sugar was at the unusual level of 1585 mg. at 11.00 P. M.! ! Again 1500 c.c. of normal saline were given intravenously. Finally, toward morning on Monday, the patient could be aroused. She had received 1400 units of insulin in 12 hours' time. At 7.00 A. M. the blood sugar was 70 mg. The patient's teeth chattered. By now she was conscious and able to be fed by mouth. She was given orange juice and coffee later followed by some oatmeal gruel and milk. During the morning the blood sugar remained at a level of about 120 mg.

The patient was then started on 40 units of protamine zinc insulin before breakfast and a diet of C 150, P 80, F 80. A few small supplementary doses of regular insulin were given according to the glycosuria. She was regulated finally on 30 units of protamine zinc insulin before breakfast.

Comment: — This case illustrates the following points:

1. Omission of insulin may result in coma.
2. A 4 plus glycosuria and 4 plus acetonuria in a comatose patient verifies the diagnosis of diabetic coma before the blood sugar is determined so that insulin therapy may be started early.
3. Large doses of insulin are required in severe coma. This case tolerated 1400 units of insulin in 12 hours.
4. About 3000 c.c. of normal saline intravenously are required in the first 24 hours. Normal saline, 1500 c.c., was given intravenously on two occasions during the first 24 hours of therapy in this case.
5. After ketosis subsided the patient may be regulated on a diet and a reasonable dose of protamine zinc insulin.

Potassium:—Recently the clinical importance of hypopotassemia during the therapy of diabetic coma has been emphasized and reviewed by Sinden and associates,[21] Duncan and associates[22] and others. These authors reported low serum potassium values in certain patients in diabetic coma, with fatal results unless treated promptly with potassium chloride. Today, the doctors treating patients in diabetic coma must have this in mind.

The causes of hypopotassemia are varied. During diabetic acidosis there is an immediate and increasing loss of potassium in the urine. This potassium comes chiefly from the cells through disturbance in cellular permeability during the intense dehydration in coma. A considerable loss of potassium in the urine may occur before extracellular levels are seriously affected. Serious hypopotassemia occurs chiefly in patients in diabetic coma who had been given glucose intravenously early. Therefore, it appears that one of the fundamental principles is not to give glucose during the first hours of therapy in dabetic coma.

The diagnosis is established best by determining the serum potassium. Since this is not always possible, one should remember that in these cases the clinical diagnosis may be made on the sudden development of marked muscular weakness, actual flaccid paralysis or paralysis of respiratory muscles.[23]

The electrocardiogram is an important diagnostic aid in detecting this dangerous complication hours before the clinical attack is likely to develop. The electrocardiographic changes[24] accompanying low serum potassium values are in marked contrast to those observed when the serum potassium values are normal or abnormally high. Thus, in hypopotassemia low-voltage QRS complexes and lowering or actual inversion of the T waves are observed. The ST segments may become depressed, and the QRS interval may be prolonged. In contrast, the electrocardiogram in patients with a high potassium level may show an absence of the P waves, wide QRS complexes and high, peaked T waves.

In Duncan's case[22] electrocardiograms made at the onset of therapy showed very high T waves, which in contrast with later tracings were interpreted as indicating a hyperpotassemia — a common finding prior to insulin therapy in diabetic coma. Four hours later the amplitude of the T wave was reduced and at 7 hours was further depressed suggesting the early stages of hypopotassemia. Potassium chloride, 1 gm., was given orally at once and repeated every 4 hours for 5 doses. The amplitude of the T waves was nor-

mal 4 hours after the beginning of potassium chloride therapy and remained so. Others also treated hypopotassemia successfully with potassium chloride orally or by beginning with 100 c.c. of a 2.0 per cent solution, intravenously and slowly.

In retrospect, former unexplained deaths in the second 12 hours of therapy in patients relieved of ketosis, and with no hyperglycemia, can be laid to hypopotassemia. These patients despite their satisfactory blood sugar and $CO_2$ combining power level were unduly weak and died quickly with a rapid paralysis of the respiratory muscles.

## Summary

This paper presents a discussion of the incidence, diagnosis and treatment of diabetes mellitus and some of its complications.

In the diagnosis it describes three types of glucose tolerance tests, namely, the standard oral method, the Exton-Rose and the intravenous glucose tolerance tests. It emphasizes various factors in diagnosis, particularly family history and nationality.

Simplicity is the goal in the treatment of diabetes. The general treatment of diabetes is discussed under prevention, education and recognition of early cases, diet, various insulin preparations, exercise, and prevention and management of complications, particularly gangrene and coma.

There is a great field for the practice of preventive medicine in the treatment of diabetes.

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# CAUSES OF BLINDNESS IN MAINE

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In this study of the causes of blindness in Maine, I am indebted to the good services of the Department of Health and Welfare of the State. In particular, I wish to acknowledge the valuable assistance of the Director of Services for the Blind and the very extensive and painstaking work rendered so generously by the Division of Research and Statistics. Only by their endeavors and technical abilities has this paper been made possible.

This study is based on data from the reports of the examining oculists on all applicants for Aid to the Blind in Maine over the past four years (1946 through 1949). A more representative sampling would be to compile the data on all, throughout the state, who became blind in the past year. However, this would presuppose that all such cases reported to a physician on becoming blind and that the physician reported each case to a registry for the blind — a state of affairs that does not exist. Other studies have used the State role of recipients of Aid to the Blind, but for Maine this role includes many who have not had recent or adequately up-to-date examinations.

All the cases in this series have been examined either just prior to their application or during the 1946 to 1949 period. All of these came under the definition of economic blindness, i.e. vision in the better eye, with best refractive correction, of 20/200 or less, or a visual field restricted to one whose widest diameter is 20° or less. (There were five cases with better than 20/200 vision who had a visual field defect meeting this latter requirement.) Also included are 10 cataract cases where vision was restored by surgery and they were thereby removed from the blind category.

It has been stated in other studies that the same cause was responsible for blindness in both eyes of each case, so that the tabulation was done by cases instead of by eyes. In this series there are 44 cases where the cause of blindness differs for the two eyes of each case. A few of these had had one eye enucleated for an unstated reason, and glaucoma or an inflammatory condition caused blindness in the other. In these few cases, there may have been the same cause bilaterally; but for the remainder of the cases having a different stated cause for each eye, no correlation for a common bilateral cause could be made. Hence the tabulation in this series has been done by number of eyes instead of by cases.

The series comprises 292 cases representing 584 eyes. For each of these the designation of the primary eye condition causing blindness has been edited by the author. The classification used follows the Standard Classification of the Causes of Blindness prepared by the Committee on Statistics of the Blind.

The topographical classification appears in Table 1. This is a classification by the primary eye condition responsible for blindness even though in many cases ocular structures other than indicated were involved to contribute to the blindness, e.g. cataract secondary to uveitis.

Where the eyeball in general was the site of the condition causing blindness, primary glaucoma was the cause in 46 eyes (or nearly 8% of the series), and myopia in 36 eyes (or about 6%). Only cases of pathologic myopia were included here with blindness attributable to the chorioretinal degeneration peculiar to this condition. Structural anomalies resulting in blindness were confined to one case of bilateral coloboma of the iris, ciliary body and choroid. Eight eyes were recorded as phthisis bulbi (a degenerate shrunken eye), and though this term does not indicate the primary eye condition, it is included in the category of degenerative changes of the eyeball in general. Also in the group for the eyeball in general were 9 eyes enucleated for various forms of injury, 12 enucleated for reasons not stated, 2 of panophthalmitis, 2 of multiple lacerations with intra-ocular foreign bodies, and one of intra-ocular hemorrhage.

Affections of the cornea causing blindness totalled 48 eyes (or about 8%). In over half of these there was keratitis of one form or another. There was one case of bilateral pannus from trachoma. There were two cases of keratoconus and 3 of bilateral corneal opacification with the cause not stated.

Inflammatory conditions of the iris and ciliary body caused blindness in 49 eyes (8.4%). Sympathetic ophthalmia was the cause in 8 eyes (1.4%) and anterior uveitis in 41 eyes (7.0%).

Cataract was the primary cause of blindness in 152 eyes (26%). Of these, 105 were of the senile or presenile type, 34 were congenital or juvenile, 2 were traumatic in origin, and the remainder were obscure as to type. Six cases of congenital cataract (representing 12 eyes) were from Washington County, there being an unusual focus of this condition around Eastport. (Consanguinity is apparently a factor in the families presenting cases of this condition in this region.)

Various affections of the choroid and retina caused blindness in 143 eyes (24.5%) of the series. Choroid-

TABLE 1—CAUSES OF BLINDNESS BY SITE AND TYPE OF AFFECTION

| Topographical Classification | Number of Eyes | Per Cent of Eyes |
|---|---|---|
| Total | 584 | 100.0 |
| Eyeball in General | 118 | 20.2 |
| Glaucoma | 46 | 7.9 |
| Myopia | 36 | 6.2 |
| Structural Anomalies | 2 | 0.3 |
| Degenerative Changes | 8 | 1.4 |
| Other | 26 | 4.4 |
| Cornea | 48 | 8.2 |
| Interstitial Keratitis | 8 | 1.4 |
| Ulcerative Keratitis | 6 | 1.0 |
| Other Keratitis | 11 | 1.9 |
| Pannus | 2 | 0.3 |
| Other | 21 | 3.6 |
| Iris and Ciliary Body | 49 | 8.4 |
| Iritis, Uveitis, Kerato-iritis | 41 | 7.0 |
| Sympathetic Ophthalmia | 8 | 1.4 |
| Crystalline Lens | 152 | 26.0 |
| Cataracts | 152 | 26.0 |
| Choroid and Retina | 143 | 24.5 |
| Choroiditis, Retinitis, Chorioretinitis | 43 | 7.4 |
| Retinitis Pigmentosa | 32 | 5.5 |
| Senile Macular Degeneration | 16 | 2.7 |
| Arteriosclerotic Diseases of the Choroid and Retina other than Senile Macular Degeneration | 7 | 1.2 |
| Diabetic Retinopathy | 25 | 4.3 |
| Other Affections of the Choroid and Retina | 20 | 3.4 |
| Optic Nerve, Tract, and Radiation | 56 | 9.6 |
| Optic Nerve Atrophy | 39 | 6.7 |
| Retrobulbar and Intracranial Lesions | 13 | 2.2 |
| Other Affections of the Optic Nerve | 4 | 0.7 |
| Miscellaneous and Ill-Defined | 18 | 3.1 |

itis, retinitis, and chorioretinitis together accounted for 43 eyes (7.4%). Retinitis pigmentosa accounted for 32 eyes (5.5%). The effect of general diseases (other than infections) was most evident in this group. Arteriosclerosis caused blindness by macular degeneration in 16 eyes (2.7%) and by other lesions of the choroid or retina in 7 eyes (1.2%); while diabetic retinopathy caused blindness in 25 eyes (4.3%). Other affections in this group causing blindness included retinal detachment and retinal hemorrhage not stated as secondary to other conditions, and retinal degeneration other than retinitis pigmentosa.

Optic atrophy caused blindness in 39 eyes (6.7%). Retrobulbar and intracranial lesions caused blindness in 13 eyes (2.2%), and other affections in the optic nerve and visual pathways group accounted for blindness in 4 eyes.

The miscellaneous and ill-defined group included cases of "congenital amblyopia," "amblyopia ex anopsia," and the few cases where the description was insufficient to assign a primary eye condition.

The etiologic classification appears in Table 2. Infectious diseases caused blindness in 3.8% of the series—there being 8 cases of syphilis, 1 of ophthalmia neonatorum, 1 of trachoma, and 1 of spinal meningitis.

It may be said in passing that 35 years ago the chief causes of blindness were ophthalmia neonatorum (accounting for 10% to 30%), syphilis (with an even greater toll) and trachoma. Maine was one of the first states to require the Crede prophylaxis for ophthalmia neonatorum. The above occurrence of one case in this series is representative of what has been accomplished by this measure. The reduction in syphilis as a cause of blindness can be traced to the advances in venereal disease control.

Trauma was the cause of blindness in 5.7% of the series.

Diabetes and arteriosclerosis each accounted for blindness in about 5% of the series.

Diseases of the central nervous system (other than

Table 2—Causes of Blindness by Etiology

| Etiological Classification | Number of Eyes | Per Cent of Eyes |
|---|---|---|
| Total | 584 | 100.0 |
| Infectious Diseases | 22 | 3.8 |
| Ophthalmia Neonatorum | 2 | 0.3 |
| Syphilis | 16 | 2.8 |
| Other | 4 | 0.7 |
| Trauma | 33 | 5.7 |
| General Disease (not elsewhere classified) | 62 | 10.6 |
| Diabetes | 27 | 4.6 |
| Arteriosclerosis (including arteriosclerotic cerebro-vascular lesions) | 31 | 5.3 |
| Other | 4 | 0.7 |
| Diseases of the Central Nervous System | 11 | 1.9 |
| Multiple Sclerosis | 4 | 0.7 |
| Meningitis | 2 | 0.3 |
| Intracranial Neoplasms | 3 | 0.5 |
| Other | 2 | 0.3 |
| Prenatal Origin | 59 | 10.1 |
| Unknown to Science | 206 | 35.3 |
| Undetermined and Unspecified | 191 | 32.6 |

syphilis) caused blindness in 1.9% of the series, and included cases of multiple sclerosis, meningitis of unstated type, a pituitary tumor and one other brain tumor.

Prenatal factors were the cause of blindness in 10.1% of the series.

The etiology was unknown to science in 35.3% of the series. This group included all the senile cataract, glaucoma, and myopia cases (except for one case of myopia said to be hereditary).

The etiology was undetermined or unspecified in 32.4% of the eyes. Practically all of the cases of keratitis, anterior uveitis, and chorioretinitis came in this group. These conditions are often caused by obscure focal and systemic infection, and often the cause remains undiscovered after thorough clinical investigation.

It is interesting to note the type of eye condition produced by some of these etiologic agents. Syphilis caused blindness by interstitial keratitis, chorioretinitis (which in one case took the form of retinitis pigmentosa) and optic atrophy.

Trauma variously produced corneal opacification, sympathetic ophthalmia, anterior uveitis, cataract, intra-ocular hemorrhage, retinal detachment, optic atrophy and general disorganization of the globe. The type of trauma having such serious consequences was usually a perforating injury or a blow. Burns were less common, but dynamite explosions and other explosions accounted for several of these blind eyes. Many of the injured eyes in this series had been enucleated.

Diabetes caused blindness mainly by the associated retinopathy, but in one case by a uveitis. Arteriosclerosis was involved mainly in the sclerosis of the choriocapillaris behind the macula to produce senile macular degeneration, but also caused blindness in this series by retinal hemorrhages, chorioretinal degenerative changes, and in a few cases by cerebrovascular lesions affecting the visual pathways.

One case of retinitis had followed rheumatic fever. One case of uveitis with cataracta complicata had been associated with arthritis.

Prenatal causes were implicated in congenital cataracts, in structural anomalies, in one case of myopia, in several cases of chorioretinitis, retinitis pigmentosa and other retinal degenerative conditions, and in one of optic atrophy.

Diseases of the central nervous system, of course, produced blindness by their effect on the optic nerve and visual pathways.

Reviewing the aphakic eyes of this series brings out some data on blindness that remains or recurs after cataract extraction. There were 44 eyes that had cataract extraction before 1946 and were blind. Twenty-one of the 44 had congenital cataract, and this re-emphasizes the well known precarious outlook for restoring vision in this condition by surgery. Many of these had had multiple needlings, yet in numerous cases where there was a good opening and clear media, there was chorioretinitis, or optic atrophy, or lack of development of vision, to preclude the surgical interference. For the aphakic eyes, other than those operated on for congenital cataract, blind-

ness was perpetuated by secondary cataract membranes, keratitis and corneal opacities, choroidal hemorrhage (in one case), phthisis bulbi (in two cases), chorioretinitis, macular degeneration, optic atrophy, and high myopia. One case with severe diabetes with bilateral cataract surgery in the past few years had excellent recovery of vision only to become blind again from the development of a circinate retinitis. Diabetes was present in 3 other cases of this group.

Table 3—Comparison of Blindness Statistics in Maine with the Federal Survey of 20 States

| Topographical Classification | Maine | Average of 20 States | Range of 20 States |
|---|---|---|---|
| Eyeball in General | 20.2 | 22.8 | |
| Glaucoma | 7.9 | 10.5 | 3.4 (So. Dak.) to 15.0 (My.) |
| Refractive Errors (mostly myopia) | 6.2 | 3.4 | 0.4 (Ark.) to 8.5 (Mass.) |
| Structural Anomalies | 0.3 | 2.0 | 1.0 (Okla.) to 3.3 (So. Caro.) |
| Degenerative Changes | 1.4 | 3.9 | 0.2 (Ark.) to 10.7 (My.) |
| Cornea | 8.2 | 17.8 | 8.1 (My.) to 40.8 (So. Dak.) |
| Interstitial Keratitis | 1.4 | 1.1 | 0.4 (Kan.) to 4.3 (Conn.) |
| Iris and Ciliary Body | 8.4 | 7.7 | 1.5 (So. Dak.) to 13.3 (W. Va.) |
| Sympathetic Ophthalmia | 1.4 | 2.7 | 0.8 (La.) to 9.3 (W. Va.) |
| Crystalline Lens | 26.0 | 19.7 | |
| Cataracts | 26.0 | 19.5 | 7.6 (R. I.) to 30.8 (Kans.) |
| Choroid and Retina | 24.5 | 12.8 | 7.1 (Ark.) to 18.5 (Mass.) |
| Retinal Degeneration (41 eyes) | 7.0 (5.5 retinitis pigmentosa) | 3.3 | |
| Optic Nerve, Visual Pathways and Centers | 9.6 | 16.8 | |
| Optic Atrophy | 6.7 | 14.8 | 6.9 (No. Dak.) to 21.2 (R. I.) |

(Figures are in per cent of all causes of blindness by site and type of affection.)

(The Federal Survey did not include senile macular degeneration and diabetic retinopathy as separate entries in their tables.)

Table 4—Comparison of Blindness Statistics in Maine with the Federal Survey of 20 States

| Etiological Classification | Maine | Average of 20 States | Range of 20 States |
|---|---|---|---|
| Infectious Diseases | 3.8 | 24.6 | 10.5 (Wash.) to 47.3 (So. Dak.) |
| Ophthalmia Neonatorum | 0.3 | 2.1 | 0.4 (Wash.) to 7.6 (R. I.) |
| Syphilis | 2.8 | 7.7 | 1.3 (No. Dak.) to 15.0 (My.) |
| Trachoma | 0.3 | 7.5 | 0.3 (R. I.) to 35.1 (So. Dak.) |
| Trauma | 5.7 | 10.1 | 5.2 (Mass.) to 18.0 (W.Va.) |
| General Diseases (not elsewhere classified) | 10.6 | 4.8 | |
| Diabetes | 4.6 | 1.5 | 0.2 (Okla.) to 3.8 (Mass.) |
| Vascular Diseases (mostly arteriosclerosis) | 5.3 | 1.7 | 0.5 (So. Car.) to 3.4 (Mass.) |
| Prenatal Origin | 10.1 | 9.5 | 5.1 (Va.) to 18.2 (R. I.) |
| Unknown to Science | 35.3 | 28.6 | 16.7 (R. I.) to 48.2 (No. Dak.) |
| Undetermined or Unspecified | 32.6 | 21.3 | 6.6 (Ark.) to 39.4 (Tenn.) |

(Figures are in per cent of all causes of blindness by etiology.)

Comparison of the causes of blindness in Maine with the causes in 20 states (covering 20,591 cases) computed in a survey by the Federal Security Agency* in 1940 and 1941 showed several variations. The proportion of blindness caused by glaucoma, myopia, and affections of the eyeball in general, by interstitial keratitis, by sympathetic ophthalmia and affections of the iris and ciliary body as a group, and by cataract, fell in the mid-zone of the range for each of these conditions in the 20 states. The per cent due to corneal affections as a group was way low even when the effect of trachoma, producing much of the corneal affections in many of the states, is excluded. The per cent due to optic atrophy was lower than for any of the 20 states. But the per cent due to affections of the choroid and retina was way above any of the 20 states, the nearest being Massachusetts with 18.5% compared with 24.5% in Maine. Maine, therefore, seems to have a peculiarly high incidence of affections of the choroid and retina — mainly, retinitis, pigmentosa, senile macular degeneration, and diabetic retinopathy.

Comparison of the etiologic causes of blindness in Maine with those in the 20 States of the Federal survey is as follows. Infectious diseases caused blindness in a lower proportion than for any of the 20 states except that the per cent due to syphilis came in the lower part of the 20 state range. The proportion from trauma was in the lower part of the 20 state range. The proportions from the prenatal origin and unknown-to-science categories were in the mid-zone of the range. But diabetes and arteriosclerosis as causes of blindness in Maine had a higher proportion than for any of the 20 states. The proportion with undetermined or unspecified etiology was in the upper part of the 20 state range.

Table 5—Aid to the Blind Recipients and Estimate of Rate of Blindness by County, in Maine

| County | Number of Recipients (Nov., 1949) | Estimated Rate of Blind per 1000 population, using population from 1940 Census |
|---|---|---|
| | 659 | 2.3 |
| Androscoggin | 62 | 2.4 |
| Aroostook | 79 | 2.5 |
| Cumberland | 74 | 1.5 |
| Franklin | 11 | 1.7 |
| Hancock | 31 | 2.9 |
| Kennebec | 65 | 2.5 |
| Knox | 19 | 2.1 |
| Lincoln | 9 | 1.8 |
| Oxford | 35 | 2.5 |
| Penobscot | 92 | 2.8 |
| Piscataquis | 13 | 2.1 |
| Sagadahoc | 16 | 2.5 |
| Somerset | 35 | 2.7 |
| Waldo | 31 | 4.4 |
| Washington | 60 | 4.8 |
| York | 27 | 1.0 |

The distribution of blindness in Maine by county is shown in Table 5. This actually is only the distribution of the recipients of Aid to the Blind as of November, 1949. Roughly speaking, the total number of blind may be estimated to be three times the number receiving Aid to the Blind.* The proportion of these recipients to the total number of blind varies somewhat with the economic status of a geographic section—the section with the better economic status having fewer on the role for Aid to the Blind. On examining the table, however, there is no readily apparent factor to account for the wide differences in the rate of blindness for several of the counties, as for example, between Androscoggin County and York County. The variations in distribution, therefore, do not bear analysis. This points up a need for a general registry of the blind so that the actual numbers of blind for any locality may be known. In fact, the social implications of blindness are so important that there is as much reason that the reporting of blindness be required by law as that the communicable diseases be reported.

* Hurlin et al.: Causes of Blindness Among Recipients of Aid to the Blind. Federal Security Agency, 1947.

## Summary

A report is presented on the causes of blindness in a series of 292 cases comprising the applicants for Aid to Blind in Maine during the years 1946 through 1949. The principle causes by type of affection (listed in their order of frequency) were found to be cataract, glaucoma, anterior uveitis, chorioretinitis, optic atrophy, pathologic myopia, retinitis pigmentosa, diabetic retinopathy, injuries to the eyeball, keratitis of all types, and senile macular degeneration. Leading the known etiologic causes of blindness were prenatal factors, trauma, arteriosclerosis, diabetes and syphilis.

Comparison of the distribution in Maine of the causes by type and affection with the 20 state Federal survey revealed that affections of the choroid and retina, mainly comprising chorioretinitis, retinitis pigmentosa, senile macular degeneration and diabetic retinopathy were very high, thus indicating an unusually high incidence of these conditions in Maine. Diabetes and arteriosclerosis were found to be of much greater incidence as etiologic factors in blindness than found in the 20 states of the Federal survey. On the other hand, affections of the cornea and optic nerve and the etiologic causes grouped under infectious diseases were low for Maine in comparison with the Federal survey.

The distribution of the blind by county estimated from the role of recipients of Aid to the Blind showed variations that could not be explained by information now available and indicated that there is a need for general reporting by physicians of all cases of blindness to a registry of the blind.


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# COMMON HAND INJURIES*

F. W. Barden, M. D., Medical Director, Saco-Lowell Shops, Biddeford, Maine

I will talk only about the common injuries that we see every day in Dispensary work and will attempt to just highlight a few of the things besides treatment. Our prime interests in hand injuries are not just treatment but diagnosis of cause, classification of hand injuries and the study to minimize their occurrence. It is our job to have as few customers (that is patients) as possible. We are quite different in this respect from the ordinary businessman whose object must be to get more and more customers. It will be my purpose to describe to you some of our experiences in the industrial field as we have them occurring around the clock.

The Textile Machine Industry, one of the oldest manufacturing processes in the United States, is classified as a heavy industry with all the hazards that are connected with a foundry, machine shop, material handling, tooling, sub-assembly, final assembly work and transportation. As a result, we are subjected to a variety of accidents; many minor — some quite serious.

During the year 1949, with an average plant population of 4000, we found that 47% of all our 7,356 accidents resulted in injuries to the hands or wrist. Many of these required extensive repair in order to get, as an end result, some semblance of function. A large percentage of these types of accidents, over 99%, resulted in no functional loss, but many of this group did result in varying degrees of psychological impairment. I am sure that many of you who are doing a lot of industrial work will, upon investigation, find figures similar to these in your own plant. Maybe not as high, but considerably higher than you estimated. The only type of injury that exceeded the 47% were eye injuries which were 1% point higher.

This leaves only 5% of the total injuries occurring to be accounted for by hernias, back cases, foot accidents, and all others. During this same period hand injuries accounted for 7,970 man hours of lost time. This figure was arrived at by taking the lost days times eight hours plus time lost in the Dispensary for treatment and travel time lost to and from the job. From all past experiences, as reported by a number of authorities, we know that for every tangible dollar of cost there are three dollars of hidden costs to accidents.

In our own case, at a base pay of $1.23 per hour, plus $3.00 for each dollar of known expense, the cost in hand injuries alone was well over $80,000.00 ($83,344.68 exact). In many States, this estimate for the same experience, would be considerably higher because of differences in all costs (compensation paid, medical costs, etc.) of the accident. All these figures do not project the pain, anxiety, loss of earning power and permanent psychological damage to the injured employee.

For years, special emphasis has been placed upon eye injuries and their proper care in industrial plants. I would like, at this time, to emphasize the fact that hand injuries should receive the same high lighting in industry as an eye protection and eye care program.

* Paper presented before the section on Hand and Restorative Surgery of the American Association of Industrial Physicians and Surgeons at the annual meeting in Chicago on April 25th, 1950.

## ACCIDENT COST SURVEY OF HAND AND WRIST INJURIES FOR YEAR 1949

### I

| | |
|---|---|
| Total average plant population | 4,021 |
| Total number of accidents | 7,356 |
| Total number of hand and wrist accidents (47% of total) | 3,457 |

### II

| | |
|---|---|
| *Loss of man hours (no lost time accidents) | 5,174 |
| Loss of man hours (lost time accidents) | 2,796 |
| Total | 7,970 |

### III

| Cost to Company | | Cost to Employee |
|---|---|---|
| *3,457 cases at $3.51 | $12,134.07 | Lost in wages |
| Workmen's compensation paid (insurance company estimate) | 4,634.00 | (minus comp. pd.) |
| Hospital, X-ray and medical (insurance company estimate) | 1,626.00 | $2,342.00 |
| | | (over earned rate |
| | $18,494.07 | $1.40) |

### IV

The "Intangible Factors" are said to be three times the estimated cost of an accident. This would make our final figures for

| | |
|---|---|
| 1. The company | $73,976.28 |
| 2. The employee | 9,368.40 |
| | $83,344.68 |

*Basis of figures

| | | |
|---|---|---|
| 15 minutes travel time to hospital (base pay $1.23) | ½hour | $ .61 |
| 15 minutes average time in hospital | | |
| 15 minutes of hospital staff time | | .31 |
| Average cost of medication and dressings | | .25 |
| | | $1.17 |
| Average case is seen in hospital three times | Total | $3.51 |

Cost per employee — Hands $20.72

In many industries, where eye protection is mandatory, the percentage of eye accidents is way down.

If hand injuries were compared to eye cases in their incidences I will venture to predict that hand injuries might greatly outnumber eye injuries. In many incidences eyes can be protected much better and easier than hands. However, working with the various departments on safety protection, it is surprising how much hand protection can be given in many of the cases. It is part of the industrial physician's job, whether in industry full time or part time, to see that management and the employees are made well aware of unsafe practices and that, where possible, these bad conditions are corrected. It is only by reducing the incidences of exposure that a reduction in accidents (and in these cases maimed hands) can be affected.

For the purpose of simplicity, I would like to divide my discussion of Common Hand Injuries into three separate parts, namely:

1. Accident Prevention.
2. General Principles of Treatment.
3. Rehabilitation.

### 1. Accident Prevention

Being extremely interested in the cause and prevention of accidents we set out about eighteen months ago to make a detailed study of all accidents occurring in the plant. Upon investigation of these accidents, as to their cause, we found that 85% could have been avoided. These were due to the human element which range from pure carelessness to horseplay, fatigue, family troubles, illness either of the employee or in the family, supervisory incapabilities

## COST SURVEY OF EYE ACCIDENTS — 1949

I

| | |
|---|---|
| Total average plant population | 4,021 |
| Total number of accidents | 7,356 |
| Total number of eye accidents (48% of total) | 3,532 |

II

| | |
|---|---|
| *Loss of man hours (no lost time accidents) | 3,517 |
| Loss of man hours (lost time accidents) | 96 |
| | 3,613 |

III

| Cost to Company | | Cost to Employee |
|---|---|---|
| *3,532 cases—cost to company at $1.66 | $5,863.12 | Lost in wages (no comp. pd.) |
| Workmen's compensation paid | | |
| Hospital, X-ray, medical expenses — outside | 240.00 | $136.32 |
| | $6,103.12 | (over earned rate $1.40) |

IV

The "Intangible Factors" are said to be three times the estimated cost of an accident. This would make our final figures for

| | |
|---|---|
| 1. The company | $24,412.48 |
| 2. The employee | 545.28 |
| | $24,957.76 |

*Basis of figures

| | | |
|---|---|---|
| 15 minutes travel time to hospital (base pay $1.23) | ½hour | $ .61 |
| 15 minutes average time in hospital | | |
| 5 minutes hospital staff time | | .12 |
| Average cost of medication, etc. | | .10 |
| | | $ .83 |
| Average case is seen two times in hospital | Total | $1.66 |

Cost per employee — Eyes $6.20

or just plain mental incapacities. Poor selection of the person for the job in many cases may be due to an aftermath of the last war. Selective placement could not be practiced too universally when calling upon man power to staff industrial concerns to do wartime work. As a result, many people were placed on jobs they were not capable of performing at any time and now, under competitive standards, they are not able to hold up their part of a specific job and are at an extreme disadvantage. We have examples of men, rejected by the Army because of mental incapacities, coming to work for us, accumulating a lot of seniority and that are now very well entrenched on the jobs. However, we see them almost daily in the Dispensary for this or that accident. Should we call these men accident prone? Or are they just badly placed? These people have accumulated enough seniority so that, when changes are being affected, it is difficult to eliminate them or transfer them to types of work that they could do satisfactorily. New employees are now being selected, but it will be some time before these errors of placement can be eliminated.

The remaining 15% was found to be due to failure of machines, poor design of operation, poor lighting and various other physical factors within the individual department.

Part of the investigation of these accidents included taking pictures of the place where the accident happened. If a machine was involved it was stopped and nothing touched until the photographer could get a number of pictures. Most of the injuries were photographed soon after the accident (when permissible) and follow-up pictures were taken. These have been used at the various meetings of supervisors, management, etc., to impress upon them how accidents occur — the extent of the injuries and what the end results are.

2. General Principles of Treatment

Basically, we are attempting to follow the recommendations of the American College of Surgeons in regard to hand injuries. We undoubtedly have a few minor variations, but these are necessary because of existing conditions.

In industry, where there is more or less control of the early treatment of injuries, it should be possible for all immediate care to be given within the period referred to by Dr. John Moorhead in his book "Clinical Traumatic Surgery" as the "Golden Period" — or within the first six hours post-trauma. Our own experience coincides with the opinion of many others that, the proper immediate care will decrease the incidence of infection, shorten the period of convalescence and decrease the severity of the disability.

All injuries, no matter how trivial, are considered contaminated wounds and so plenty of soap and water is used to cleanse the area. Normal Saline is used copiously to irrigate the wound. After external cleansing — a sterile dressing is applied. The case is then seen by the doctor. The wound is examined for deep tissue injury; motion is noted (tested against resistance) for possible tendon and nerve injury and then an X-ray is taken of the injured hand. Further treatment is then followed according to whether there are fractures present, tendons cut or deep tissue involved.

Minor cuts, if not deep, can often be approximated by the use of adhesive tape butterflies. However, when it is evident that the wound needs suturing this is done. One thing we never do is use skin clips around the hand. Fine Dermalon or silk sutures on non-traumatic needles are used and interrupting suturing is done. Our experience reveals that skin of the hand should be treated the same as that of the face. The less trauma by suture material and by needles result in less scar tissue formation. I have seen many cases where, three or four months after injury, one could hardly identify the scar of the injury. Previous to paying so much attention to suture material used, I would occasionally see some fairly unsatisfactory results and with all the precautions we still get some unsatisfactory results. We apply local antiseptics to the edges of the skin but do not put any antiseptics into the wound. The entire procedure is done in the plant operating room under aseptic technic. Before closure we often place a layer of Sulfanilamide over the raw area. This is just dusted on — not the entire wound filled with the powder.

If upon examination deep tissue, tendons, etc., are involved the patient is hospitalized at the Webber Hospital and the necessary surgery is done in the operating room — not the emergency room. Under general anesthesia, with tourniquet used for the control of bleeding, the wound is debrided of only those tissue that we feel would result in infection or unsatisfactory healing. Preservation of all the viable tissue possible is attempted. Repair of tendons, nerves, bone, etc., is done and the wound closed. Vasoline dressings (as the first dressing or at the most the second) are applied. Large protective dressings are used and the hand kept in the position of function or position of grasp. If necessary, splinting is used. Wrist is hyperextended in cock-up position; fingers in mid-flexion and separated; thumb abducted and in mid-flexion with tip pointed toward little finger. First dressings are not removed for at least one week unless infection sets in. In our experience all cases have resulted in primary union with no infections. We have had to do some secondary repair of a tendon, but they were all clean cases. The patient is given tetanus prophylaxis and Penicillin (depot) is started — 400,000 units the first day (this dose contains 100,000 units of Crystalline Potassium Penicillin G and 300,000 units of Crystalline Procaine Penicillin G) then subsequent daily doses of 300,000 units of Crystalline Procaine Penicillin G are given for the succeeding six days. Usually the patient is out of the hospital within forty-eight hours and treatment is continued by daily visits to the plant hospital. Of course, if the injuries are more extensive, these time limits are not applicable.

Puncture wounds of the hands are given the same over-all treatment as minor cuts and lacerations. Tetanus prophylaxis is used in all cases after a test dose for sensitization has been given. If found to be allergic to the tetanus anti-toxin, broken doses are given. Occasionally, we have some reaction seven to eight days later, but these have easily been controlled by anti-histaminic drugs given orally. We have also found that some anti-tetanus serum made by some manufacturers tend to produce more reactions than do others.

Foreign bodies, such as particles of steel, wood, glass, etc., are removed immediately if possible. If the particle is so small and deeply embedded, we do not attempt to remove it at this time because of danger of doing further damage to the tissues. The wound is given the same attention as any other wound of the hand and anti-biotics used to combat infection. Some of the foreign bodies can be localized by X-ray — others cannot. Tissue reactions often wall-off these particles so that within a short time a local nodule may be felt. At this time removal can be attempted and often is quite simple. If they exhibit no discomfort, loss of motion, etc., from the foreign body being present, we advise non-removal until there are some indications for doing it. Particles of wood may break off from a large piece when it is removed and these small particles will set up a foreign body reaction with some localized infection. When this has been well localized the area is opened and most of the time these small particles will drain out along with the rest of drainage and promptly go

on to healing. Often hot soaks and wet dressings are used as supporative treatment. This is true also of puncture wounds. Indications for the use of Sulfonamides or Anti-biotics are always watched for. If, however, this area does not heal and continues to drain or heal over and then reopen in a few days you can be sure that the foreign body is still present and then measures must be taken to eliminate the trouble.

Injuries to the nails are often very painful. A crushing blow to the finger is the most common cause. Hematomas of varying size result and X-rays often reveal a fracture through the tuft of the distal phalanx. We do not drill the nail to relieve pressure and we try to discourage people from going home after work and drilling their own nails. Hot soaks and wet dressings are used. If the Hematoma is large enough to elevate the nail we push back the cuticle at the base of the nail. This will allow the blood to be evacuated and will not seal over like a drill wound would do. We do not pull off nails regardless of the extent of injury. Loose parts of the nail are cut away but any that is still tight to the bed are allowed to remain. Within a few days these particles loosen up and can be picked off painlessly. Through the years of following this routine I can only remember two or three cases of infected fingers and all of these resulted from having had the nail drilled to relieve pressure.

Burns of the hands result from many causes. Thermal burns are frequent and are often the result of grinding wheel accidents or burns due to hot metal. It is quite common that burns from hot metal or electrical current do not show the true extent of damage until a few days later. What may appear to be not too deep a burn at the time of accident, within forty-eight hours exhibits signs that deeper structures are involved. Burns from grinding wheels, if deep, in our experience are very slow at healing. Often, the edges become thickened and the area takes on the appearance of an ulcer. Scarifying the edges with a scalpel is usually enough to stimulate skin proliferation. Chemical burns are quite frequent and are treated the same as other burns.

A very common type of burn that we frequently see is caused by book matches. An employee may be attempting to light a cigarette while running his machine. The book of matches he is holding catches fire and before he drops the burning book he received a good burn on the thumb, index finger and palm of the hand in the region of the thumb and index finger. Extensive burns should receive immediate attention. We use a mild bland ointment on gauze and then apply plenty of sterile "waste" and bandage snugly. If a large area is involved the patient is immediately hospitalized and all the routine care given. The small burns that are seen in the Dispensary daily are treated the following way. If there is blister formation do not open the blister — apply sterile vasoline gauze and bandage snugly. When the blisters are opened they are opened widely and the old skin is removed. We have found that excellent results have been obtained after about the third or fourth day by using Chlorisium ointment. This tends to keep the wound clean and healthy looking and seems to stimulate skin proliferation.

Traumatic amputation of the fingers at various levels occurs quite frequently and according to our survey all resulted from the failure of the machine operator to follow prescribed safety rules. In all cases we attempt to save every bit of viable tissue — sometimes not completely covering the tip with good skin. However, these have all done remarkable well. No skin grafting has been necessary and healing has not been prolonged. Sacrificing some of a finger just to make a beautiful skin flap is not encouraged.

Infections of the hand are not as common as they used to be. Undoubtedly the early care and the use of Sulfonamides and Anti-biotics have cut down the incidence considerably. The only ones that we do see are the neglected cases — due to late reporting of the accident or not coming in until the infection is well on its way. Hot soaks, wet dressings and anti-biotic medications are used routinely. Under this regime— many cases that looked like they were going to develop into deep abscesses requiring drainage clear up without surgical intervention. Those that do need surgical drainage do not run the long protracted course with the resulting disability that we used to get before we had the newer drugs at hand.

In dealing with any injury to the hand we must constantly think about the general condition of the patient. Diabetics that are uncontrolled will not do well. Delayed healing is one of the important signs. Undiscovered syphilis will cause numerous unlooked for sequellae. Various dermatological conditions may be flared up by trauma and many primary lesions of the hand may be caused by association with harmful material resulting in an occupational dermatitis.

Routine X-rays also reveal underlying bone pathology which might not be suspected if this procedure was not followed.

### 3. Rehabilitation

Rehabilitation of hand injuries should begin as soon as the accident has occurred. Proper treatment will help to keep the disability to a minimum. Often, just a chance remark to the injured employee at the time of accident may have a bearing on his future disability and rehabilitation. If splinting is required only that which is absolutely necessary should be used — keeping the rest of the hand mobile. Passive motion is started as soon as it is safe to do so and, as soon as possible, Hydro-therapy with whirlpool baths are begun. Exercise of the fingers is encouraged by having the patient work with varying sized rubber

balls while receiving the whirlpool. Massage is used considerably. Other exercises are also used to increase finger motion gradually — from gross movement to fine movement. We advocate the use of knitting, crocheting, etc., to facilitate fine finger motion.

We attempt to get the man back on the job as soon as possible and encourage him to exercise his hand. Many times we are confronted by objections from the Foreman and even the Union because they do not want a man that can only do half a job. Too much opposition would, of course, necessitate keeping the man off until he could do a more efficient job. Our Orthopedic Consultants feel, as we do, that it is better to get the man back on half work than to let him "loaf" until he is completely well. To often this requires almost superhuman effort before we can finally get them back to work and even then they often turn out to be Prima-donnas — wanting to do only certain types of work and claiming they are unable to carry on their old jobs. Those that obviously cannot perform all of their old duties are transferred to other jobs and those that can do their old jobs are sent back to them.

An attempt is being made to have a department set up for small assembly work. This would be used to get people back earlier than we are doing now and encourage them to want to work. The present trend of too much welfare is very evident with many people. If we can get them back to do something — then much will be gained — and the patient will be making a start along the "roughing up" process which we feel is necessary to rehabilitate many of our injuries. It is far too early to say just what the result of this attempt is going to be.

### Summary

To summarize, I would like to reemphasize a few of my past statements.

1. Hand injuries are more prevalent than suspected.
2. Hand injuries should be given the same "high lighting" in an industrial program as does injuries to the eye.
3. Selective placement of employees will decrease hand accidents.
4. Proper immediate treatment of all hand injuries is essential. (Try to give treatment during the "golden period" which is six hours post trauma.)
5. All wounds to the hand should be considered contaminated at time of injury.
6. Rehabilitation of hand injuries should begin as soon as the accident has occurred.
7. Attempt to get the injured employee back on the job as soon as possible.

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## REPLACEMENT THERAPY AND FLUID EQUILIBRIUM

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One of the most unappealing and yet very important subjects to the practitioner of any type of medicine is fluid balance of the human organism. This subject is very hard to understand because of the technicalities and nomenclature involved. For instance, to tell the average practicing physician that fluid equilibrium depends on milliequivalents from the electrolyte standpoint or even that a milliequivalent is the product of the number of milligrams per liter divided by the atomic weight multiplied by the valence means little or nothing. There must be a more practical formula which the average man can adopt and utilize in his practice for there is no question that an understanding should be assimilated. We will, therefore, try to explain how we arrive at certain conclusions in the lines to follow and summarize how we know which solution to administer at a given time. There is a great tendency for the medical man, the dermatologist, the psychiatrist, and the obstetrician to overlook a patient's inorganic electrolytes, as well as organic solutes thinking that the subject is wholly a surgeon's interest and problem. To many, fluid balance means needles and parental therapy — these, however, should only be used as a last resort or when the oral or rectal methods cannot be adopted.

It is common knowledge that about one-fifth of the body weight is extra cellular fluid i.e. composed of plasma and interstitial fluid such as lymph and components. This fluid carries the inorganic, organic and colloidal substances which are so necessary for life and health to continue. It further functions as a medium for waste, nutrient, and catalytic agent collection as well as transportation, helps regulate the body temperature, acidity and alkalinity together with many other processes. Changes in concentration effect and initiate disturbances in normal fluid transportation largely by osmotic differences.

The organic substances carried in the interstitial fluid are many. Amino acids, glucose, and their products are among the foremost to consider when replacement is needed. Glucose is soluble but proteins

are colloidal and exert a colloidal osmotic pressure which causes fluid shifts.

How do we know these people need proteins, sugar, salt, etc.? The general opinion today is that clinical signs and symptoms aided by laboratory work helps us to make our diagnosis and thus plan our attack.

Protein may be supplied orally by nutritious food or amino acid compounds which are palatable. Parentally, it may be administered in the form of protein hydrolysate, blood plasma, or whole blood. It should be further remembered that diets high in protein (90-120 gms. per 24 hours) raise plasma protein and often result in a marked subjective improvement — these quantities do not seem to injure the kidney or lower its working ability. This is contrary to the hypothesis of several decades ago.

Carbohydrates may be given by mouth in various foods or parentally in the form of 5% to 15% glucose always accompanied by Vitamin B in necessary amounts.

As regards inorganic electrolytes probably the most important to note is sodium chloride which is given by many in a haphazard way with the addition of a bit of glucose, whence they close their eyes and hope their patient gets well—which they usually do in spite of the treatment. This NaCl element is a very necessary electrolyte to understand and evaluate properly.

The average well person injests about 4-9 gm. of sodium chloride per 24 hours. This, of course, is all right providing the patient is well and has no organic disturbance which would contra indicate this amount of salt feeding. The person with diarrhea, vomiting, sweating, heat exhaustion, diabetic ketosis, extensive burns and toxic vomiting of pregnancy needs salt. If HCL is lost with vomiting the CL is deficient, and on the other hand if pancreatic products are lost by diarrhea there is usually a greater loss of the Na factor. However, both of these are replaced with NaCl — occasionally the latter by Na bicarbonate.

What happens if we give an excess of salt? It has been demonstrated that a poorly functioning kidney does not tolerate salt in excess while a surgical or traumatic case tends to collect water at the site of operation or injury thus impeding recovery. Pulmonary complications are more prevalent in cases where there is too much salt in the extra cellular fluid. Sodium chloride deficient plasma and interstitial fluid is much preferable to an excessive concentration of this inorganic substance. Postoperative, traumatic, anemic, cardiac, postpartem and malnourished people usually have an anoxemia with a resulting depressed kidney threshold for salt excretion, hence pushing salt beyond the amount needed will result in difficulty, as fluid collects, and in some cases even permanent damage of a kidney may result.

Fluid localization often brought about by excessive salt in plasma and interstitial fluids is an effect of water imbalance.

Potassium lack is often seen in diabetes, uremia and diarrhea. A marked increase or depletion of this electrolyte effects fluid shifts.

Laboratory procedures aid only slightly in determining the solution to our fluid balance problems. These are, however, an adjunct and chemistry should be done every 48 hours, until clinical signs and laboratory tests are normal. Some of the most commonly used are listed below.

In *dehydration* the red blood cell count and Hbg. are high, plasma protein is increased, the N. P. N. is elevated and the urine concentrated (Sp. Gr. increased)—output of urine is usually less than 1000 c.c. per 24 hours.

*Salt water lack* is exemplified by a high hematocrit and a lowered NaCl in the blood. When renal impairment is at a minimum and there is a normal output of urine, the quantitative estimation of urinary chlorides will help determine whether or not there is salt poverty. A test that is easily carried out and helps both qualitatively and quantitatively consists of adding a few drops of nitric acid to a few cubic centimeters of albumen-free urine in test tube. This prevents precipitation of phosphates. A few drops of Silver Nitrate Solution (12%) are then added and a white curdy precipitate of Silver Chloride forms if Chlorides are in good quantity — however, if Chlorides are depleted only a milky or opalescent change takes place. (Reference—Todd and Sanford, 10th Edition, Saunders, "Clinical Diagnosis by Laboratory Methods," page 74.)

A serum protein and a blood sugar help evaluate the amount of these two substances present. However, a plasma protein is normally 6.5 to 7.5%. When lowered to 5.5% edema is said to make its debut in most cases.

It remains that clinical signs and symptoms must be relied upon for us to ascertain what the patient needs for replacement therapy.

In simple dehydration there is dryness of tongue and mouth, thirst, elevation of temperature in some cases.

In NaCl lack and deficiency of $H_2O$ there is an easily compressable pulse, snb-normal temperature, loss of appetite, nausea, lassitude, and the urine is scanty.

NaCl in too high concentration with water depletion shows nausea, vomiting, edema in different locations, puffy skin, and a diminution of urinary output.

Potassium poverty is characterized by lowered plasma potassium, rapid respiration, muscular weakness which may go on to paralysis.

When protein is deficient we have a marked loss of weight, fluid collections, nausea and anemia.

Sugar deficiency is demonstrated by low blood sugar and in some cases tremors, decreased B.P., vertigo, faintness, etc.

In computing the amount and kind of parental fluid to administer we keep in mind the so-called "insensible loss" which normally takes place by vaporization i.e. the amount lost be respiration (lungs) and skin, which is roughly 1000 c.c. per 24 hours. Secondly, the amount lost by fecies, urine, suction, tubes, vomit, and drainage from wounds, fistulas, etc.

The amount lost by vomiting, urine, and suction can be accurately determined by measurement and that by drainage in most cases can be easily tallied. The fecal, and in some instances sweating, are not easily computable but a rough estimate can be made. By simple arithmetic we add the recoverable output, the insensible loss and the estimated loss which cannot be measured, and subtract this from the intake to find the amount of replaceable solution. We next determine the deficient solute or electrolyte and decide which kind is to be used.

Again suction and vomiting should be estimated as NaCl loss because HCL is lost from stomach — this is replaced by 0.6% to .9% Saline solution in amount to the measured loss—5% glucose in water is used to replace urinary output, insensible loss, and actual $H_2O$ deficiency. Hartman's solution may be used to correct losses due to long intestinal suction tubes or intestinal fistulas because of the replacement action. Acidosis is best combated by Isonate Solution or Sodium Lactate formulas.

Preoperative blood transfusions and solutions have little or no effect upon replacement of operative and postoperative losses. Transfusions and intravenous therapy at time of operation do have some replacement value. Disturbances of circulation characterized by cardiac pathology or pressure symptoms should always be considered when fluid collections occur — these, of course, are ruled out by a good physical exam.

Our interest in the subject is enhanced by the general practice of obstetrics. Everyone who does confinement work has toxemias regardless of prenatal care. Fluid balance is just as necessary to maintain here as in surgery and other branches of medicine yet our obstetrical textbooks devote little or no space to this subject. A suspected toxemia in the period of gestation should alert one as to what the physiological processes should be and what they are. Edema and vomiting are very common. Many of us were taught in our school days as well as internships to follow that if the patient was edematous we should cut down on the salt and meat intake and everything would be just fine. Each of these cases presents a problem that differs from the previous one. We should bear in mind a protein deficiency, anoxemia, a malfunctioning kidney, a salt excess intake and other disturbances of the normal. The patient that is vomiting needs salt and the person who is putting out large amounts of albumen in urine certainly needs close observation to determine whether or not replacement of this protein is needed. The edematous expectant mother should be reviewed with respect to renewal of protein and in rare cases salt. Toxic products are often helped by carbohydrate metabolism and yet one should make sure the patient is not putting out large quantities of sugar in urine.

Eclamptic and preeclamptics are occasionally benefited by Magnesium Sulphate parentally which is effective as regards the fluid balance.

Postpartem and prepartem hemorrhage may disturb fluid balance to a marked degree — all the elements are markedly depleted and replacement is best made by whole blood, plasma and physiological saline plus treatment of the oxygen lack.

The edema encountered in toxic cases often effects repairs hence disturbances of extra cellular fluid should always be corrected if good results are to be encountered. The pregnant women must be watched throughout the gestation period for pathology in fluid balance.

In summary may we emphasize that: (1) Laboratory tests are only helpful — clinical signs and symptoms are of utmost value. (2) Parental water replacement alone is best made by 5% glucose in water. Salt loss by NaCl solution 0.6%-0.9% — Basic loss by Isonate, or Sodium Lactate solutions. Protein and sugar deficiency is corrected by protein hydrolysate and glucose respectively. (3) Sodium chloride in a deficient amount is much safer than that in excess. (4) Amount of replacement is decided by amount of loss. (5) All corrective measures should be oral or rectal if possible — otherwise the parental method is applicable. (6) Toxic vomiting of pregnancy should always be regarded as a fluid imbalance as are preeclamptic and eclamptic cases. Correction of fluid shifting should be attempted after cause is found.

# SOME ALLERGIES OF THE GASTROINTESTINAL TRACT

JOHN A. TURNBULL, M. D.

The stomach is the most abused organ in the human system. What even some supposedly intelligent people will do to their digestions almost passes comprehension.

These abuses might be classified as known and unknown. Among the "known" abuses are irregular hours of eating, too-frequent meals, eating before retiring of alternating hot and cold foods or drinks, and the use of alcohol. Eating while over-tired or when overheated or chilled is also deleterious.

"Unknown" abuses include the eating of foods to which the individual happens to be allergic. Or, if he *knows* certain foods disagree with him, and eats them anyway, the causes of his subsequent troubles might be considered as coming under both heads.

These two types of abuses are capable of producing gastritis, either acute or chronic. The latter may be considered to have supervened when definite pathologic changes have taken place in the stomach. An acute gastritis in which the true pathologic picture of inflammation has not yet appeared, but in which congestion of the mucous membrane and other clinical symptoms of gastric insult have appeared, would simply be called gastritis (unqualified). True pathologic inflammation, i.e., redness, swelling, heat and pain,—the indications of true acute gastritis — are practically present only as a result of mechanical or chemical changes in the tissues. These pathologic changes in the mucosa of the stomach will vary from a mild form due to irritation from the character or excessive amount of food to a severe form involving various grades of actual inflammation. The symptoms of the latter will be epigastric distress, pain or discomfort, nausea, vomiting, and possibly accompanying giddiness, palpitation or faintness.

Such symptoms are often observed in children, particularly infants, but may occur in any age group or any walk of life. It also appears that heredity may have some influence—that members of certain families may be predisposed to gastric upsets of the type described.

## HYPERCHLORHYDRIA

The question has been raised as to whether hyperchlorhydria should be termed a distinct disease, inasmuch as an excess of acid is simply a symptom, found in a number of gastric disorders and due to a variety of causes. Yet the symptoms associated with this condition are so definite and so often embrace all the subjective manifestations which can be elicited, in so large a proportion of cases, that one is constrained to consider this condition as a separate clinical entity.

Hyperacidity is met with in many cases without the symptoms of hyperchlorhydria. There are also patients in whom the level of hydrochloric acid is below normal—or in whom it is even absent entirely —yet in whom symptoms of hyperacidity are manifest. These symptoms depend more upon the sensitiveness of the mucous membrane than upon the actual degree of acidity. In other words, hyperesthesia of the stomach is a necessary factor in the production of the symptoms of hyperchlorhydia. In such hypersensitivity of the gastric mucosa there is a definite link between the chemical findings and the subjective disturbances. Hyperchlorhydia has frequently been shown to be accompanied by proliferation of the cells of certain portions of the mucosa. On the other hand, a degeneration of the gland cells has been found in a large proportion of cases of achylia gastrica.

My experience has shown that the connecting link in these gastric disturbances is allergy, that allergenic foods — which, by acting directly upon the gastric mucosa are capable of producing the same reaction as is obtained by testing the same substances on the cuticle (either by abrasion or patch tests) — can produce comparable reactions within the digestive tract. Where allergenic substances can produce hyperaemia, redness, swelling, wheals or itching upon the surface, they are capable of producing in the stomach hyperaemia or swelling of the mucosa, edema, either hyperchlorhydria, hypochlorhydria or anacidity — the last-named being governed by the sensitivity of the individual.

Several analogies might be cited. For example it is known that allergenic foods can produce vascular hypertension in one person, while another, under the same circumstances will develop hypotension. To carry the illustration further, the cutaneous reaction to allergenic foods may be eczema in one patient, while another develops urticaria. To carry it still further, take allergic rhinitis. Here we will have itching in the nasal cavity which may be markedly red, swollen and showing edema of the tissues over the turbinates with a watery discharge. This represents hypersecretion. In intumescent rhinitis, there will be swelling and edema of the turbinate tissues, but little or no secretion; this is hyposecretion. These three diverse illustrations come from three different bodily systems, vascular, cutaneous and nasal; they show both hyper- and hypo-secretory dysfunction.

Therefore it seems to be possible for allergic reactions also to cause hyperacidity, hypo-acidity or anacidity.

In hyperchlorhydria, the most conspicuous symptoms are eructions of acid material, "heartburn", burning sensations in the stomach and epigastric pain. Occasionally such pain will appear soon after eating; as a rule, it will be more marked two to three hours after taking food. When the pain is at its height, eructions of sour material occur and afford a certain amount of relief. The "heartburn" is the result of irritation to the esophagus by the acid material. The pain varies from epigastric discomfort to severe gastralgia. When severe, it is felt in the epigastrium or it may be referred sometimes to the back between the shoulder blades. The severity of the symptoms varies with the amount of allergenic foods ingested and the degree of the patient's sensitivity to them.

### Acute Gastritis

Acute gastritis is defined as a congestion of the mucosa of the stomach producing symptoms of gas, eructions of acid material, discomfort, severe distress or pain. These symptoms, together with changes in the gastric mucosa may be of short duration, lasting from a few hours to several days. The congestion may be slight to marked, accompanied by hyperaemia, the amount of the latter depending upon the severity of the inflammation.

### Case I

Male, aged 70, physician, consulted me on September 10, 1918, for gastric pain and distress which had begun five years before and increased rapidly. While making the cutaneous tests, I commented that chicken seemed to be one of his allergens. He stated that if he ate chicken once, he did not notice any discomfort, but if he at it again the next day, he would have severe epigastric pain and large amounts of gas. Elimination of his allergens brought complete relief of his symptoms.

It is this delay in reaction that sometimes fools patients as to what foods are not good for them. One dose of the allergen produces no noticeable discomfort, but paves the way for the production of all the symptoms when they take other doses shortly after.

### Case II

Male, aged 45, police officer, consulted me on July 10, 1944, for hay fever during August and September. In addition to his sneezing during these months, he was troubled with epigastric distress, and severe pain and "burning" in the stomach. He stated that he was using a pound of sodium bicarbonate each week, was, in fact, using so much of it he was "scared it will eat my stomach away!" His symptoms had begun six years previously. By avoiding food to which he was sensitive, complete relief of all gastric symptoms was obtained in ten days' time.

Patients who have hay fever will also be sensitive to some of the cereal grains. By omitting these materials from the diet, better results will be obtained from the pollen desensitization treatments.

### Case III

Male, age 52, consulted me on November 24, 1947, for arthritis in the right shoulder and arm. He also complained of gas either immediately after eating or within two or three hours, also a burning sensation in the stomach and regurgitation. These had begun six years before and become more pronounced in the past year. He was slightly constipated, tired easily and had bad dreams every night. Suitable diet brought about complete relief of the gastric symptoms, the bad dreams and the fatiguability in two weeks. The arthritis was relieved in two months.

### Chronic Gastritis

It is a rather difficult matter to draw an exact line of demarkation between acute and chronic gastritis. The acute form enters the chronic stage more rapidly in some patients than in others.

In chronic gastritis, all the same symptoms are demonstrated as in the acute form, except that they appear either more often, over longer periods or are continuous. A greater amount of mucus will be formed. There will be marked congestion of the circulatory vessels, and infiltration of the interstitial tissue. The inflammatory edema separates the constituents of the mucosa and, in the severe form, secretions may be either diminished or increased.

### Case IV

Male, age 48, consulted me on September 20, 1923, for severe epigastric pain, "burning" in the stomach, large amounts of gas. He was tired to exhaustion all the time. His symptoms had begun eight years before. His distress and pains were worse at night, so much so that he could not sleep, hence had taken over a night job. Avoidance of allergenic foods, as indicated by cutaneous tests, brought about complete relief in two weeks.

Patient stated he "felt like a million dollars" and was now doing an enormous amount of work, working extremely long hours, etc. I suggested that he "use half of the million and keep the rest," in other words, work shorter hours and take more rest.

### Case V

Male, age 45, consulted me on September 14, 1923, for epigastric discomfort and distress, severe pain,

distention, eructions. His symptoms had begun six years before, were present all the time. They were most severe at night, so as to interfere with his sleep. His tonsils were also markedly congested and enlarged, with infected follicles. There was marked post-pharyngeal congestion and thickening of the mucosa. He was told that as soon as his general condition could be improved sufficiently, he would have to have the tonsils removed. By avoiding the foods to which he was sensitive, in two weeks his condition was so much improved that I passed him in my waiting room without recognizing him. At this time the condition of his tonsils and throat had also cleared up completely so that I decided it was now not necessary to remove the tonsils.

### Gastric Ulcer

In acute gastritis, different portions of the stomach may be affected in different individuals; also the affection may vary in extent, duration and severity. The resultant hyperaemic, swollen, edematous areas of the mucosa and submucosa can exert an influence on the blood supply to the stomach in certain locations by 1) producing pressure on the arterioles and capillaries, 2) producing inflammation in the walls of the vessels, 3) producing inflammation of the intima of the vessels, or 4) inducing the formation of thrombi resulting from the inflammatory condition of the intima. Also, any or all of these factors, by cutting off the blood supply to one or more areas which these vessels nourish, can produce nutritional, degenerative changes with the formation of ulcers. If hyperchlorhydria is present, ulcers would probably cause greater distress or discomfort than if there were anacidity or normal acidity.

### Case VI

Male, age 40, consulted me on April 12, 1921, complaining of epigastric discomfort, distress and pain, with severe exacerbations at intervals, especially between meals and being worst of all from midnight until breakfast. For three months he had been on a milk diet, carrying milk with him in his car to drink whenever hunger pains began. Even on this milk diet, all his symptoms continued. By avoiding allergenic foods, improvement was produced in one week, with seventy-five percent relief in two weeks, and complete relief in three.

### Case VII

Male, age 56, attorney, consulted me on January 10, 1927, for epigastric distress, discomfort, and sharp, severe pain. This was continuous with numerous acute exacerbations each day. These symptoms had first appeared ten years before. Patient stated that his suffering was so severe and caused him such mental depression that he had at times contemplated suicide. Avoidance of allergenic foods cleared up all his symptoms, both gastric and mental, in three weeks' time.

### Case VIII

Female, age 57, widow of physician, consulted me on September 20, 1927, for symptoms of severe epigastric distress, and pain which were worst at night but present at all times. Patient frequently vomited "a cup of blood." These symptoms had begun ten years previously. As soon as she began eating a meal, she became chilly, this condition continuing for one to two hours after each meal. By dressing extra warmly at meal times, eating warm food and drink, avoiding foods to which she was sensitive and standing next to a radiator afterwards, she was able to avoid the unpleasant chilling until the diet could rectify the other disturbances. In two weeks, the patient felt decidedly better and in four weeks had obtained complete relief from all gastric and other symptoms.

### Case IX

Male, age 54, executive, consulted me on November 10, 1926, for epigastric discomfort, distress and severe pain, especially at night, with distention and hunger pains frequently during the day accompanied by a "gnawing" sensation. He was depressed, irritable, completely exhausted. Previous to this consultation he had been under the care of Dr. Sippy and on his "Sippy diet," in a Chicago hospital for nine months. At the time he came to me, his systolic blood pressure was 80, diastolic 60. By avoiding foods to which he was sensitive, in one week he was fifty percent relieved, seventy-five percent in two weeks and completely asymptomatic in three weeks. These reports were from a letter received from the patient's home in the middle west.

On February 15, 1927, this patient came to me again to tell me how well he felt, how much work he was doing, etc. I gave him similar advice to that offered the patient in Case IV, warning him that he would have a severe let-down otherwise.

On March 31, 1948, this patient again sought a consultation, whereupon it appeared that he had not followed my instructions, as he was completely exhausted and depressed, with a systolic blood pressure which had dropped since February 15, 1947, from 120 to 80. This appeared to be the result of fatigue poisons generated by excessively long working hours and overexertion. I ordered him to bed for a complete rest. Within a week he was back in my office, a changed man, less tired, less depressed and with all life looking definitely brighter. I instructed him to return to his home in the west, to go to bed for another week, then to go back to his work only gradually, limiting his hours out of bed for several weeks thereafter. In a short time, I learned that, by following my instructions, he had recovered completely.

### Duodenal Ulcer

Duodenal ulcer is not as common as gastric ulcer; if however the duodenum happens to be the "shock area" for the individual, an ulcer may appear here instead of in the stomach itself. This is especially likely to be the case if hyperacidity is present. This excess acid passes the pyloris into the duodenum and may not be neutralized. In that case it can cause irritation, producing hyperaemia and inflammation, thus preparing the mucosa for further irritation from allergenic foods, and favoring changes in the arterioles and capillaries (as described previously under gastric ulcer). This in turn causes nutritional and degenerative changes in the mucosa, resulting in a duodenal ulcer.

Duodenal ulcer has been observed following extensive surface burns, especially upon the face. It may be that the broken-down tissues form some substance to which the duodenal mucous membrane is allergic, this substance being brought to that area by the blood stream. It could also act upon the endothelium of the blood vessels supplying this area, producing thrombosis and obstructing circulation, resulting in nutritional and degenerative changes in the mucosa.

All patients with duodenal ulcer give a history of prior gastric disorders.

### Gastric Neurosis

Functional disorders of the stomach, the so-called gastric neuroses, are a group of conditions in which perversions or alterations in the functional activities of the organ occur without the presence of any demonstrable lesion. Many disorders that have been so designated, are, in reality, simply manifestations of some actual organic disease.

Those which actually can be designated as functional, may be classified as primary and secondary. The primary lesions are those conditions in which the seat of the disturbance lies entirely within the stomach itself. The secondary group embraces those disturbances which result from some underlying condition elsewhere in the body. Examples of the latter might include disease conditions in the gallbladder, the appendix, the pancreas, the liver, the colon, the kidneys or the pelvic organs. Any of these is capable of producing alterations or perversions of gastric function. Gastric symptoms may be present in varying intensity, in spite of the fact that examination does not reveal any gastric disorder. This is similar to the conditions which obtain in the case of pruritis; physical examination may not reveal any change to account for the itching and discomfort. The same may occur in any part of the stomach or gastrointestinal tract; there foods may produce a considerable degree of inflammation or irritation with no evidence of the cause that can be elicited by physical, roentgenological or chemical examination. Yet the dysfunction and pathological changes are just as undeniably present.

### Acute Enteritis and Acute Colitis

Acute enteritis and acute colitis may be brought about in the same manner as previously outlined in the case of acute gastritis. Allergic reactions may produce and influence these conditions in exactly the same way. In hyperchlorhydria, excessive amounts of acid are poured into the intestines, which the secretions of the latter are unable to neutralize, and which can then produce typical irritation. Allergenic foods also find different "shock organs" in different individuals.

The symptoms of acute enteritis include discomfort, distress or pain varying in intensity up to severe colic, marked distention and varying amounts of gas which may affect any or all parts of either the small or large bowel. Many patients are also constipated due to gaseous distention of the intestines.

### Case X

Female, age 68, single, consulted me September 10, 1928, indicating that I was the *nineteenth* physician she had consulted for gastrointestinal symptoms which had existed for 30 years. She complained of severe gastric and intestinal discomfort and distress which were continuous with frequent exacerbations especially at night, also nausea, dizziness, constant fatigue and insomnia. On many nights her symptoms were so severe she was constrained to walk the floor.

This patient had had a hard life, first as a saleswoman, later in a dressmaking establishment of her own, all of which involved long hours and hard work. She claimed she "had always had a weak stomach," that certain foods caused severe allergic disturbances. I gave cutaneous tests and prescribed a diet; in two weeks she was fifty percent relieved of her symptoms, with complete relief in four weeks. However, in spite of her years of suffering and her direct knowledge of its cause, food tempted her beyond her strength. Turkey was one of her allergens; when the holidays came around she would partake in spite of all — and suffer the inevitable results. Inside of two hours there would be marked gastric and intestinal symptoms becoming more acute each hour, preventing rest and sleep and taking a week to quiet down.

### Case XI

Male, age 58, consulted me on June 9, 1941, for symptoms of 30 years' duration, including "heavy feeling" in stomach, gas, pain in the back between the shoulder blades, sometimes in the heart. The pain was steady with a feeling of pressure and appeared two to three hours after each meal, becoming gradually more acute. At the time of consultation, it was

nearly continuous. There were also pains in the lumbar region and in the calves of the legs. The patient was tired and exhausted all the time, and complained of a dull feeling in his head all the time. By avoiding foods to which he was sensitive, he obtained complete relief in two weeks.

### Case XII

Male, age 70, engineer, consulted me for "gout" in the right great toe; his symptoms included pain, redness, tingling and burning, also marked swelling at intervals. Swelling and pain were frequently so severe that he could not put his foot to the floor. When he was thus confined to his bed, he also had great distention of his entire abdomen, with pain which was often very acute, nausea, dizziness, extreme fatigue and disturbed sleep. An allergen-free diet cleared up all his symptoms, both the "gout" and the gastrointestinal conditions, within three weeks.

One of this man's allergens was chicken. Some time later, on an extended airplane journey, he had chicken for luncheon; within fifteen hours he had a return not only of his gastrointestinal distress but also of his "gout," to an extent that kept him in bed for 3 days. However, a year later, I received a letter stating that he considered himself very well for a man of his age.

### Chronic Enteritis and Chronic Colitis

Much after the manner of chronic gastritis, chronic enteritis and chronic colitis, develop from the acute conditions after a number of acute attacks or a prolonged such attack. As a rule the conditions that produce this change succeed a chronic gastritis. In fact, an inflammatory "catarrhal" condition of the entire alimentary tract may exist, or portions of the several divisions of the tract may be simultaneously affected. The symptoms are similar, increased discomfort, distress and distention which may be present most or all of the time. With these disturbances, other organs in the abdominal cavity, the pelvis or elsewhere may also be affected. In fact, dysfunction in any of the other bodily systems or several of them may co-exist, producing a picture of acute illness. Unfortunately, more than one experienced physician has diagnosed such patients as neurotics, neurasthenics or hypochondriacs. With such a conclusion I strongly disagree; I consider it an injustice to such a patient, for he is actually extremely ill and deserves all the care and consideration possible for his many symptoms. The following four cases will serve to bring out my point of view:

### Case XIII

Female, age 45, consulted me on March 29, 1948, for a long list of symptoms. These included abdominal pain with distention; a burning, gnawing sensation; nausea, dizziness, depression, exhaustion and bad dreams. She would waken in the night with a "smothery" feeling. These symptoms had begun ten years previously and increased rapidly in severity. She had consulted a large number of other physicians and had been to several diagnostic clinics, yet her condition had grown steadily worse. She knew that cheese would produce "canker sores" in her mouth within fifteen minutes of eating it.

Examination showed marked redness of the tonsillar fossae areas and of the post-pharyngeal, nasopharyngeal and laryngeal mucosa. There was a thick, white coating on her tongue, which the patient stated had existed for many years. There was tenderness over the epigastric area and over the entire colon. The descending colon, from a point two inches below the splenic flexure and extending six inches downward was a hard mass, three inches in diameter and extremely tender. My diagnosis here was of impacted feces with marked inflammation and dilatation. The patient stated that she was always constipated.

Her systolic blood pressure was 90, diastolic 60. On April 16, after being some two weeks on an allergen-free diet, patient had not again experienced the "smothery" sensations, had less coating on her tongue, had a fifty percent reduction in the size and tenderness of the descending colon, and was free from abdominal distress and gas. She was no longer tired and was sleeping well. Her systolic blood pressure was 110, diastolic 60. On April 26, she was free of all symptoms and the mass in the colon had completely disappeared. At this time her systolic pressure was 120, her diastolic 70.

### Case XIV

Female, age 39, consulted me on March 22, 1922, for abdominal distress and discomfort with extreme tenderness and pain throughout the entire alimentary tract. She had quantities of gas all the time, also nausea and constipation. Her symptoms had been attributed to her appendix and gallbladder and these had been removed in April, 1920. Following this surgery, all her symptoms had rapidly increased in severity; also other symptoms had developed, headache, mental confusion, depression, pains all over the body, noises in the ears, vertigo, incoördination of reflexes, swelling of the face and eyelids, twitching of various parts of the body at different times. An allergen-free diet cleared up the abdominal signs in ten days. This was followed by a gradual recession of all the other symptoms, so that she was ultimately able to go back to work.

### Case XV

Female, age 52, consulted me on June 12, 1944, for burning in the stomach with severe distress and dis-

comfort throughout the abdomen, nausea, dizziness, marked abdominal distention; also sneezing, watery nasal discharge, stuffiness of the nose, a effervescent feeling at the vertex of the skull, a sense of fullness in the ears (closing of a car door caused a feeling of pressure in her ears), gas throughout the abdomen which was worse after meals; the nausea was worst during her menstrual periods. She was tired, exhausted and mentally confused, and had pain and tenderness over her entire body. All these symptoms had first appeared ten years before. By adhering to an allergen-free diet, complete relief of all symptoms was obtained in three months.

### Case XVI

Male, age 65, consulted me on September 22, 1947, for symptoms which had begun three years before, including what he thought was "gas in the stomach," just below the ensiform cartilage, from which he received some relief by belching. He felt weak and miserable. Later, while shovelling snow, he "felt as if his stomach had dropped out," felt numb all over; he took a half hour's rest, then felt gas "rolling about." The following day he was weak and exhausted with large quantities of gas in his abdomen. Thereafter, he had similar spells once or twice a day, presently increasing to two or three a day. He was also subject to dizziness, especially if he moved suddenly. He had had a cough for 30 years.

On August 28, he had eaten clams; on August 30, lobsters and clams, following which he had a severe coughing spell accompanied by nausea. He then developed an aching all over his body, with headache, chills and sweating and was confined to his bed for a week. He continued to feel miserable, and was unable to sleep.

A week before the present consultation he had developed a rash on both arms, together with eczema on both ankles, and became full of gas which he was unable to pass. His bowels were irregular; his tongue was markedly coated, whitish in the center with yellow margins. The epiglottis was markedly reddened, this congestion extending forward three inches upon the soft palate. A diagnostic clinic had previously diagnosed his condition as "mental depression."

This patient had previously consulted so many doctors and clinics that he was frankly disgusted and expressed his opinion of physicians and hospital in no uncertain terms. His experience had made him so obstinate that there was little anyone could do with him; I told him he need not come back to me if he was going to be so abusive. However, he did follow my dietary recommendations and in three months had obtained complete relief of all his symptoms. In February of this year, I received a letter stating that he was entirely well.

### Constipation

Gaseous distention is a common feature of a number of gastrointestinal conditions. In catarrhal inflammation and congestion, the accumulation of gas may be considerable. This, in turn, causes weakness of the intestinal walls, resulting in inability of the bowel to remove the accumulated material. This accumulation within the tract causes pressure and dilatation. There may be localized distention, with stasis, as noted in Case XII. In such conditions the peristaltic waves stop at the splenic flexure end of the impacted segment and will be deficient or absent in the affected area, then begin again beyond it. Inhibition instead of stimulation of peristalsis can result from irritation in the bowel, with consequent inflammation and constipation. Many persons with gastrointestinal inflammations have varying degrees of constipation.

### Diarrhea

This term implies a lessened consistency and usually also an increase in frequency of stools. Usually these are caused by stimulation of the bowel due to increased peristalsis. This may be encountered in either the large or the small intestine. It not only includes those forms of the condition due to disease of the gastrointestinal tract, but also may be due to conditions arising outside that area. Stimulation of the bowel by irritating substances may cause the fluid content to be rapidly carried into the colon, preventing absorption in the small intestine, or it may cause increased transudation of water from the blood into the bowel together with increased production of mucus. Peristalsis may be increased in diseased conditions of the stomach which cause an excessviely acid chyme to be discharged into the intestine. This may be associated with entero-colitis or other catarrhal or inflammatory conditions of the mucous membrane and with various ulcerative conditions of the bowel. In cases of widespread irritation of the bowels, involving both small and large intestines, copious watery discharges are the rule.

### Case XVII

Male, age 52, consulted me on May 12, 1922, complaining of frequency of bowel movements. These occurred eight to ten times a day and were liquid or semi-liquid in character. With them, he passed large quantities of gas and had discomfort and distress throughout the abdomen all the time. There was frequent, severe, colicy pain, and nausea in the morning. There was much mucus in the stools. All these symptoms had been present for six years. By avoiding foods to which he proved to be sensitive, in two weeks there was a sixty percent decrease in the num-

ber of bowel movements and the nausea, distress and pain had disappeared. In four weeks there was complete relief of all symptoms and the bowel movements were normal.

### Case XVIII

Female, age 60, consulted me on October 20, 1926. She complained of fifteen to twenty loose, watery bowel movements, with large quantities of mucus, each day. She also had gas, discomfort, frequent severe abdominal pain, abdominal distention, fatigue and weakness. All these symptoms had existed for the past twenty years. In June of that year, her family physician had told her that her blood pressure was 175, but that she should go away for the summer and forget about it. On October 24, I found her systolic pressure to be 225, diastolic 160. By avoiding foods to which she was allergic, she obtained complete relief of all symptoms in four weeks.

### Membraneous Enteritis

In certain forms of enteritis, pseudomembranous inflammation of the mucous membrane of both small and large intestine may occur. The symptoms are those of ordinary diarrhea; liquid, brownish stools with a more or less offensive odor and containing considerable visable mucus, together with the passage of a cast.

### Case XIX

Female, age 45, consulted me on October 5, 1928 (the 26th physician she had consulted). Her complaint was of watery, offensive bowel movements, ten to fiffteen in number each day, together with the passage of a cast three to six inches in length, of a light brownish color. Passing of these casts had begun six years before. Previous to the onset of the diarrhea there had been gastrointestinal discomfort, a burning sensation in the stomach and distention, for four years. By avoiding her allergens, she achieved complete relief of all symptoms in five weeks' time.

### Cancer

More and more the idea has gained credance that gastric ulcer is one of the commonest predisposing factors in gastric carcinoma. That cancer may be frequently associated with ulcer is further suggested by the frequency with which each selects the pyloris and the lesser curvature of the stomach for its site. The malignancy will arise from the edge of the ulcer, in the zone of inflammatory reaction. This again is the true pathological picture of chronic gastritis, which is characterized by round cell infiltration of the interstitial tissue, separation of the aveola and hyperplasia of the secretory tubules.

### Case XX

Female, age 65, referred to me by her physician, who stated that she had an inoperable carcinoma of the stomach. She had had a cancer of the right breast removed fifteen years previously. The referring physician stated he believed I could "make her life more comfortable." Her symptoms were abdominal discomfort, distention, a feeling of tightness around the waist, nausea, retching and vomiting (especially in the morning) of glairy mucus. I prescribed an allergen-free diet; in three months I received a letter from the patient stating that she was very comfortable and feeling stronger.

### Case XXI

Female, age 63, consulted me on May 10, 1932. Although this patient had had gastrointestinal symptoms for ten years, consisting of distress, distention, nausea, discomfort and abdominal pain, the extreme weakness which afflicted her at the time she came to me had only begun in 1929. She was so weak that her son and daughter had to help her into my office. Her condition was such that I felt a general physical examination would be in order to determine if she were fit to take the cutaneous tests. This revealed a large mass in the region of the pancreas which I diagnosed as carcinoma of the pancreas. When I stated this to the younger people, they replied that this was the same diagnosis given earlier by a surgical colleague. I told them I could not cure their mother but might make the balance of her life more comfortable, which they urged me to do. After three weeks of avoiding foods to which she was sensitive, she walked into my office unassisted and seemed much stronger and more comfortable. She followed her prescribed diet for five months, after which she again ate foods to which she was allergic. Six weeks later she was dead.

Although the main cause of illness lay outside the alimentary tract, namely in the pancreas, in this case, I feel that the gastrointestinal symptoms which had apparently been present longer than the neoplasm, make it suitable for inclusion in this series.

### Conclusions

1. Acute gastritis may be caused by allergenic foods, this disturbance varying from occasional mild attacks to those which are frequent and severe with acute exacerbations.

2. Allergic gastritis may pass from the acute to the chronic form, the latter lasting for long periods of years in some cases.

3. In both these conditions, the inflammation which is produced in the stomach is analogous to eczema or urticaria on the skin. In allergic gastritis,

there will be hyperemia of the mucosa and submucosa and of the secretory glands of the stomach.

4. Allergy of the gastric secretory glands may produce either hyperchlorhydria, hypochlorhydria or anacidity. Hyperchlorhydria, in turn, may cause marked irritation of the duodenal mucosa, which, aided by the further irritation of allergenic foods, may produce duodenal ulcer.

5. Hyperemia of the gastric mucosa and submucosa may be associated with vasoparesis of the arterioles and capillaries, in which case edema of the mucosa and submucosa will develop. Also, with an increase in this condition, external pressure upon the blood vessels may induce, by obstructing the circulation, the degenerative processes which lead to ulceration. Thrombosis from the same source, may also play its part in the production of ulcers.

6. Chronic gastritis or gastric ulcer are believed to be the commonest predisposing causes of gastric carcinoma.

7. Allergenic foods may also produce either acute or chronic colitis, in part or all of the lower alimentary tract.

8. Diarrhea may result from the ingestion of allergenic foods.

9. Allergenic foods can cause pseudomembraneous enteritis.

10. 21 cases are cited, covering all of the conditions discussed. In two cases of inoperable carcinoma, the elimination of allergenic foods served to lengthen and make more comfortable the lives of patients who were being plagued by gastrointestinal symptoms originating, not in the cancerous process but in the ingestion of allergenic foods. Observations in these two cases seem to indicate that these allergens may have played an important predisposing role in the first development of the carcinomata.

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## GENERAL REACTIONS FOLLOWING THE USE OF AUREOMYCIN IN THE EYE

Cornelius S. Hickey, M. D.*

Aureomycin (Duomycin), derived from the *genus Streptomyces* by B. M. Duggar et al.,[1] of the Lederle Laboratories, has proved effective against gram positive, gram negative, rickettsial diseases and virus infections.[2, 3, 4, 5, 6] This antibiotic in the form of Aureomycin HCl and a borated salt of Aureomycin was used by Braley and Sanders in the treatment of 200 ocular infections with good results in a large percentage of the cases.[7] Harned and others in experimental animals and in clinical use have reported it is of low toxicity and almost of no side reactions orally and parenterally. Nausea and bowel upsets were reported by Collins et al.,[4] but these were mild and "could not always be related to treatment."[4] Schoenbach and his workers reported no toxic or allergic reactions except for transient nausea when the drug was used orally. A 0.5% solution of Duomycin in 0.9% saline when used in the rabbit eye was found to be slightly irritating for a short time but in 24 to 48 hours showed no evidence of irritation. Bryer and his co-authors reported that three drops of a 0.25% and 1.0% aureomycin borate solution when instilled into the conjunctival sac of a rabbit showed no immediate or delayed local reaction.[10] There was no report or observation made where Aureomycin when used locally caused any general reaction. Because of this, it was interesting to note two cases in which the local use of Aureomycin (Duomycin) in the eye caused definite side reactions.

Case 1 — On March 18, 1949, a 41-year-old white male was seen complaining of severe pain, lacrimation, photophobia, redness, and blurring of vision in his left eye. This condition had been present for over three weeks. Treatment received in Rome and on board ship while on route home had not helped. On examination, he showed a deep ulceration of his cornea and a dendritic keratitis. The ulcer was cauter-

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ized and as Braley and Sanders had reported good results in this condition with Aureomycin, the drug was prescribed to be used locally (Duomycin ophthalmic). Two days later, the patient reported that his eye condition was greatly improved but that he had headache, nausea, general debility, loss of appetite, and increase in photophobia. However, the drug was continued. Two days later, the patient reported no change in his general symptoms and added that he developed "peculiar feelings" a short time after the use of the Aureomycin. He stopped his drops and noticed that his symptoms disappeared. His eye remained red but this was thought to be due mainly to his eye pathology. In order to ascertain whether or not his symptoms were due to Aureomycin, he was asked to again use the drug. He coöperated and reported a return of his symptoms after a few instillations. The drug was discontinued as his eye condition had greatly improved and his general symptoms disappeared. He made a normal recovery.

Case 2 — On March 21, 1949, a 19-year-old white female was referred for treatment for a purulent discharge from both eyes. This condition had been present for three days. On examination, the bulbar conjunctive and conjunctiva of the lids was markedly injected and edematous. There was a purulent discharge in the fornices. A smear showed staphylococcus and short-chained streptococcus. She had no temperature and no other symptoms. Duomycin ophthalmic was prescribed. One day later, the patient complained of increased redness, burning, some photophobia and slight nausea. The antibiotic was continued as the purulent discharge was markedly reduced. The following day the patient complained of marked redness of both eyes, intense photophobia, severe headache, nausea, loss of appetite and general debility. She was unable to leave her bed. On examination at home, she had marked injection of the conjunctiva of both eyes with small pin-point areas of sub-conjunctival hemorrhage. There was no discharge. Her photophobia was so marked that she kept her face buried in the pillow. Her headache was severe and she felt generally weak. Her temperature was normal and physical examination revealed no other condition. The Aureomycin was stopped and in 24 hours the nausea, headache, and general weakness had disappeared and the injection of her conjunctiva was markedly reduced. In 48 hours, both eyes were almost white except for the sub-conjunctival hemorrhage and the patient had an otherwise normal convalescence.

## Summary and Conclusions

1. Two cases are reported showing that Aureomycin when used locally in the eye may have some side reactions.
2. The symptoms are transient and disappear on discontinuing the drug.
3. Absorption of Aureomycin from the eye is rapid.
4. In eye conditions in which Aureomycin is used the eye condition, rather than any side reactions, should be the criterion for continuing treatment.

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# WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT THE DEFENSE AGAINST THE ATOMIC BOMB

By: The Committee on Emergency Civilian Defense of the Maine Medical Association (*) (†) and with the approval of the President, the Council, and the House of Delegates of the Maine Medical Association.

If an atomic or hydrogen bomb should be detonated over an American city, the population would certainly be faced with the greatest emergency in its history. Nevertheless, it is certainly not true that the entire population would be wiped out, nor is it true that nothing could be done to help the survivors[1] (figure 1).

There is no known method at present of providing protection for those persons out in the open in the immediate neighborhood of an atomic bomb when it is detonated.[2] Fortunately, however, a great deal has been learned about mitigating the secondary effects of ionizing radiation and about helping survivors who have received less than a lethal amount of atomic radiation. Many lives may be spared by an understanding of preventive measures that can be taken by the general population.

Colonel James P. Cooney, formerly of the Army Medical Corps and now a member of the Atomic Energy Commission, in a talk made at the Pennsylvania University Hospital, Philadelphia, stressed the question of Civilian Morale. He said, "Mr. and Mrs. America have been so frightened by the information they have received to date, that if a bomb were dropped on one of our cities tomorrow, mass hysteria would probably cause the unnecessary loss of many lives." Colonel Cooney went on to say that — "Mr. and Mrs. America have always been ready and willing to do what must be done in an emergency, and will, if properly instructed beforehand, do the right thing under this new kind of stress."

Colonel Cooney has further stated — "War is fought with the knowledge that men will be killed. Since this is a 'necessary hazard,' it is obviously not wise to treat radiation hazards differently from other calculated hazards. * * * For battle discipline and military effectiveness the dominant measure is not the hazard itself but the soldiers estimation of the hazard. * * * At present, radiation is perhaps the most overvaluated of all. Psychological training for the military level of acceptable radiation hazard is possible and should be pursued."[3]

What Colonel Cooney has said regarding war and the acceptance and evaluation of other calculated hazards such as that due to radiation and their effect on battle discipline and military effectiveness can be equally well applied to the civilian population in time of war. No one can seriously doubt that the next

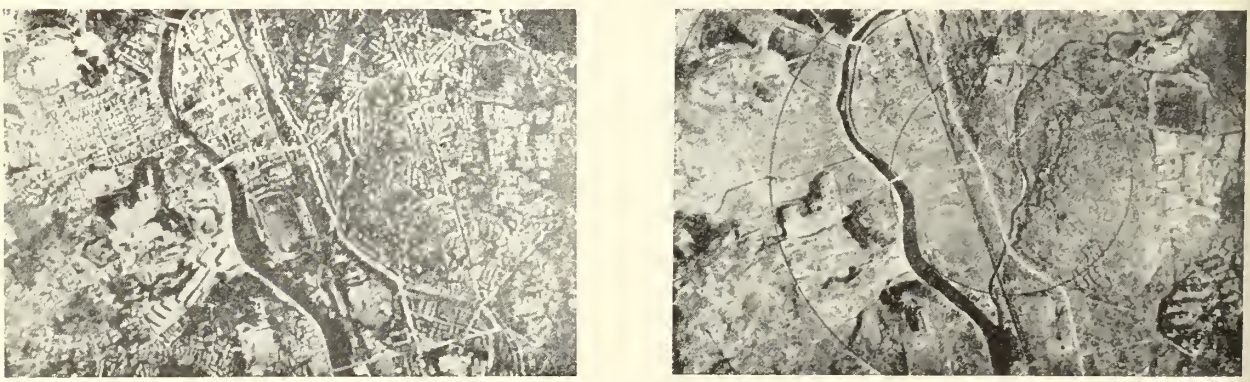


FIGURE 1

Hiroshima before and after bombing area around ground zero. 1,000 foot circles. (A. A. F. Photos.)

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† Since approval for this series of articles was given by the President, The Council and the House of Delegates at the Fall Clinical Session of the Maine Medical Association held at Waterville in November, 1949, and since these articles were written, the Committee on Emergency Civilian Medical Defense has been enlarged by the appointment of the following members: Albert W. Moulton, M. D., Garfield G. Defoe, M. D., Frederick C. Dennison, M. D., Harold E. Small, M. D., M. Allen Torrey, M. D., John B. Thompson, M. D., Roscoe L. Mitchell, M. D., and Clarke F. Miller, M. D.

war will be fought with atomic bombs many times more devastating then those dropped on Japan. Civilians must be made to realize that these new bombs will almost certainly be dropped upon our densely settled civilian centers and without warning by a powerful attacking enemy nation. Furthermore, they should be forewarned that casualties will be tremendous in the area immediately adjacent to the zero point and that there is no possible way known at present to protect the population caught out in the open above ground within a half-mile radius of the epicenter. On the other hand, they should be instructed in the things that those outside this first one-half mile of the epicenter can do to minimize the amount of damage to their own person and to their own property.

This protection against the atomic bomb may be divided into passive defense and active defense.[4] The blast or shock wave; visible light, ultraviolet, and infrared radiations; nuclear radiations; and psychological effects are four important aspects of the atomic bomb against which protection must be developed.

*A — Passive Defense and Protection*

*Blast:* As one moves away from the point of detonation, the effects of the atomic bomb rapidly decrease in intensity. Therefore, distance is always the best protection against an atomic bomb blast. Primary shock, or blast damage, is defined as the compressive and tearing action of the shock wave on the human body. When an object of strength, such as that of an ordinary wall, is interposed between the blast and the body, shock damage to the body is effectively reduced. Therefore, underground shelters and normal reinforced concrete buildings provide the most effective protection against the atomic bomb blast very close to the point of detonation.

Secondary shock or blast damage is caused by flying objects hitting and lacerating the body. In event there is some advance warning of an atomic detonation, many things can be done to reduce the chances of this type of injury. Persons in the vicinity should avoid standing in front of windows or under overhanging cornices, chimneys and other heavy objects that might be easily knocked down. It is wiser to lie flat on the floor or ground and, if possible, to seek protection in underground or especially constructed and reinforced shelters. Very little of the air blast is transmitted through the ground and into basements or into underground shelters. Much can be done in the way of preparing installations to reduce damage from the secondary shock effects.

Flash burns can be greatly reduced in number and severity by the proper utilization of all available types of shading or screening materials. Light colored clothing reflects almost all radiation and is much superior to dark clothing which latter type catches fire and produces flame burns on the skin beneath. Of course, the flash burns occur only when an individual is in the open and in direct line of sight of the exploding atomic missile; for flash burns are produced by direct exposure to the visible and near-visible radiation eminating from the point of detonation.

Flame burns were produced by fires started in the inflammable materials in wrecked buildings; and, therefore, this type of hazard can be reduced by making structures out of less inflammable materials or by fire-proofing other materials within houses such as furniture, upholstering, rugs, etc. Large quantities of adequate fire-fighting equipment should be made available and large numbers of auxiliary firemen should be trained. This fire-fighting equipment and personnel should be widely dispersed in order to insure that these vital elements in the defense organization are not destroyed by a single atomic detonation over that vital area.

*Nuclear Radiation:* New problems for the civil population have been created by the use of nuclear radiation in warfare and in industry. Both external and internal radiation may produce these effects which can be immediate or delayed. The immediate effects occur within a few thousands of a second after the detonation of an atomic bomb when 99 percent of the nuclear radiation produced is liberated. Since this is penetrating radiation that comes from outside the body it constitutes an external hazard.

Gamma rays are produced in large quantities and radiate in straight lines in all directions immediately after detonation of an atomic missile. These rays are very penetrating and a large amount of material is required to absorb or stop them; but shielding would be required only on the side of the explosion. The weight of the shielding material and not its thickness is the important thing, and it is this fact that has made lead the shielding material of choice for use in laboratories where gamma radiations or X-radiations occur. The approximate half-thickness of construction materials* are one inch for steel, three inches for concrete, and four inches for wood or earth.

Neutrons represent another type of external hazard at the time of an atomic explosion but they are not as effective at great distances as the gamma rays. However, they travel in straight lines from the point of detonation and are difficult to stop or shield against since they are uncharged particles and the weight of the shielding material is not the important factor. Substances with low atomic weights like hy-

* The effectiveness of a shield is most often described by means of thickness of the material which is necessary to reduce the intensity to one-half (½) the initial amount.

drogen are the best; therefore, compounds like water and paraffin are superior for use in shielding against neutron beams. The approximate half-thickness of common materials are between three inches and twelve inches for steel and six inches for concrete, earth, wood and water. The shielding need be only between the person and the source of the neutrons.

*Delayed Radiation:* The decay of fission products after an atomic bomb blast accounts for about one percent of the nuclear radiation. This delayed radiation is negligible after a high air burst and, hence, is not a hazard since the fireball and mushroom cloud carries the fission products high into the air where they are widely dispersed by the wind.

A base surge moving close to the ground will, in all probability, occur after an underwater burst or after a surface land burst and will spread a large proportion of the fission products out over ships or cities within an area of five square miles. This cloud will surround buildings, people and equipment; and the residual radiation from the unfissioned atomic materials that is left after the bomb burst will be greatly enhanced because of its close proximity and will thus produce radiation intensities on the ground that are higher by many thousandfold.

It requires several minutes for this cloud to spread over its maximum area; and this will provide a variable amount of time for the survivors to get out of the way or to dodge the cloud or to get down into a basement or sub-basement or into an air-raid shelter. Since the radiation from the base surge comes from all points in the cloud, any shielding that is prepared must be on all sides including the top and must include collective protectors with filters or inclosed air-conditioning systems.

There may be a significant, but not necessarily lethal, degree of external hazard for those working in highly contaminated areas after a detonation. To protect against this type of external hazard is one of the primary functions of the radiological safety teams which would be the first element of the task-force group to enter the bombed area. Such a team would be composed of an atomic physicist, radiological safety officers, health physicists, and radiological safety technicians; and it would be the function of these specialists to determine the extent and the intensity of the radioactive contamination and to issue directions relative to the areas in which rescue work and evacuation might be carried out and the time limits for work per twenty-four hours in each area.[5] The "Geiger Counter (figure 2) or similar types of apparatus such as the new "Radiac Set" (figure 3) would be used for measuring the rate of radioactivity in a contaminated area. A pocket ionization chamber and the film badge worn on the wrist, can both be used for measuring the individual's accumulated radiations. The generally accepted tolerance dose is 0.1 roentgens per day.



FIGURE 2

The "Geiger Counter" is used for measuring the rate of radioactivity in a contaminated area. Beta and gamma radiation are made audible through the earphones and register on the dials as roentgens or miliroentgens per hour. (Atomic Bombing — A Problem For Civil Defense — Headquarters, First Army.)



FIGURE 3

"Radiac" Set

(Radioactivity detection identification and computation set.)

This instrument is a new radiation detection device suitable for use by both military and civil defense organizations. (*Bull.*, U. S. M. Dept., Vol. IX, No. 12, page 1049.)

The internal hazard for those working in a highly contaminated area after the detonation is created by disturbing the dust which may enter the body through

inhalation. Almost all of this radioactive material or particles of dust or droplets of water range in size from 0.1 to 10 micons. The extremely efficient filter in the modern gas mask such as the assault mask is believed to give adequate protection. Furthermore, it is belived possible that new masks will be devised that will protect against atomic, biologic, and chemical warfare.[4]

Protective clothing would be required for workers entering contaminated areas. The function of this clothing would be to keep contaminated material from the skin and from possible later entry into the body. Its main requirement is that it should be disposable since radioactive contamination materials cannot be rendered harmless by any physical or chemical means.

*Prevention of Dissemination:* Personnel must be prevented from disseminating harmful residual radioactive materials; and in order to accomplish this important preventive medicine function, decontamination centers for area evacuation should be set up near the border of the contaminated region and all traffic in and out of the area controlled. Facilities must be made available for personnel entering the contaminated zone to remove outer clothing and change to overalls, hat, gloves, and boots. Food and tobacco should not be taken into the contaminated area. Then, efficient monitoring would be of paramount importance. Personnel would remove hat and gloves and wash face, neck, and hands thoroughly five times with soap and water after which the remaining clothing would be removed and the entire body washed five times with soap and water.

A monitor located in a room between the shower and the uncontaminated side would give permission to personnel to go to the "clean" side and put on "clean" clothing. Facilities would have to be provided by the radiological engineers for the disposal of contaminated clothing and wash water from the showers, etc. Clean clothing and especially shoes will present a difficult problem for evacuees leaving the contaminated area.

*Internal Radiation:* This is a delayed hazard and is possible only when persons are in a base surge, the mushroom cloud, or any area over which the base surge has previously passed, and when those persons inhale or ingest some of the radioactive materials.

An additional hazard exists from eating with contaminated hands or by consuming contaminated food or drink. Radioactive materials that were carried into the body by any of these means would be absorbed from the gastrointestinal tract and carried by the blood to various parts of the body where they would be deposited in vital organs and remain to give off deadly ionizing radiations and thereby constituting a serious internal radiation hazard.

Collective protectors with filters or inclosed air-conditioning systems are probably indicated for vital installations and underground shelters when atomic warfare is anticipated. Such items would be required to prevent the highly contaminated air of the base surge from entering installations that had been built to furnish adequate protection from the blast effects and from the gamma radiations and neutron beams created immediately by the atomic bomb blast. Decontamination techniques and facilities should be developed to help reduce the long-term possibility of personnel becoming contaminated and later having active material enter the body through the respiratory or digestive tracts. Disposal techniques that have been worked out thus far consist of washing away, carrying away or burying the radioactive material; but, unfortunately, all three of these methods are far from simple or easy to operate with entire safety. An adequate supply of clean water must be provided for the showers and the contaminated water must be carried off into filtering plants or into deep disposal wells where the radioactive contamination substances will be removed, or the contaminated water must be run into a large enough river or body of water to ensure a sufficient dilution to render the radioactive contaminants harmless.

## Passive Defense and Protection Against the Hydrogen Bomb

The scientific authorities[7] seem to be in agreement about what a hydrogen bomb would mean to the American people and they have given out certain correct information about the potentialities of this new type of bomb. It is expected that several years will be required to complete the bomb and to ascertain whether or not such a bomb can be successfully detonated. The bomb will certainly be large and heavy and how big it is will depend only upon the amount of heavy hydrogen that can be carried in a plane or in any other device which may be used to deliver the bomb.

Lt. General Leslie R. Groves, U. S. A. (Ret.), who directed the wartime Manhattan project which developed the atomic bomb, has stated this year in an article written for International News Service that to destroy the heart of New York-Manhattan, together with the New Jersey and Brooklyn waterfronts — would require seven well-placed atomic bombs. He has further stated that the same damage could be done with one H-bomb, if it has the power claimed for it, and if it can be placed on the target. One H-bomb could destroy the bulk of the population in the area it hits. The H-bomb, if it really were a thousand times as powerful as the A-bomb, would

have a radius of complete destruction of not more than 15 miles. In the case of New York, this might mean anywhere up to six million persons would suffer from the fearsome blast. General Groves has further stated that a hydrogen bomb's destructive effect will be tremendously greater than the atomic bomb. How much more, he believes, no one can predict until the bomb has been produced and tested by actually exploding the missile (figure 4).

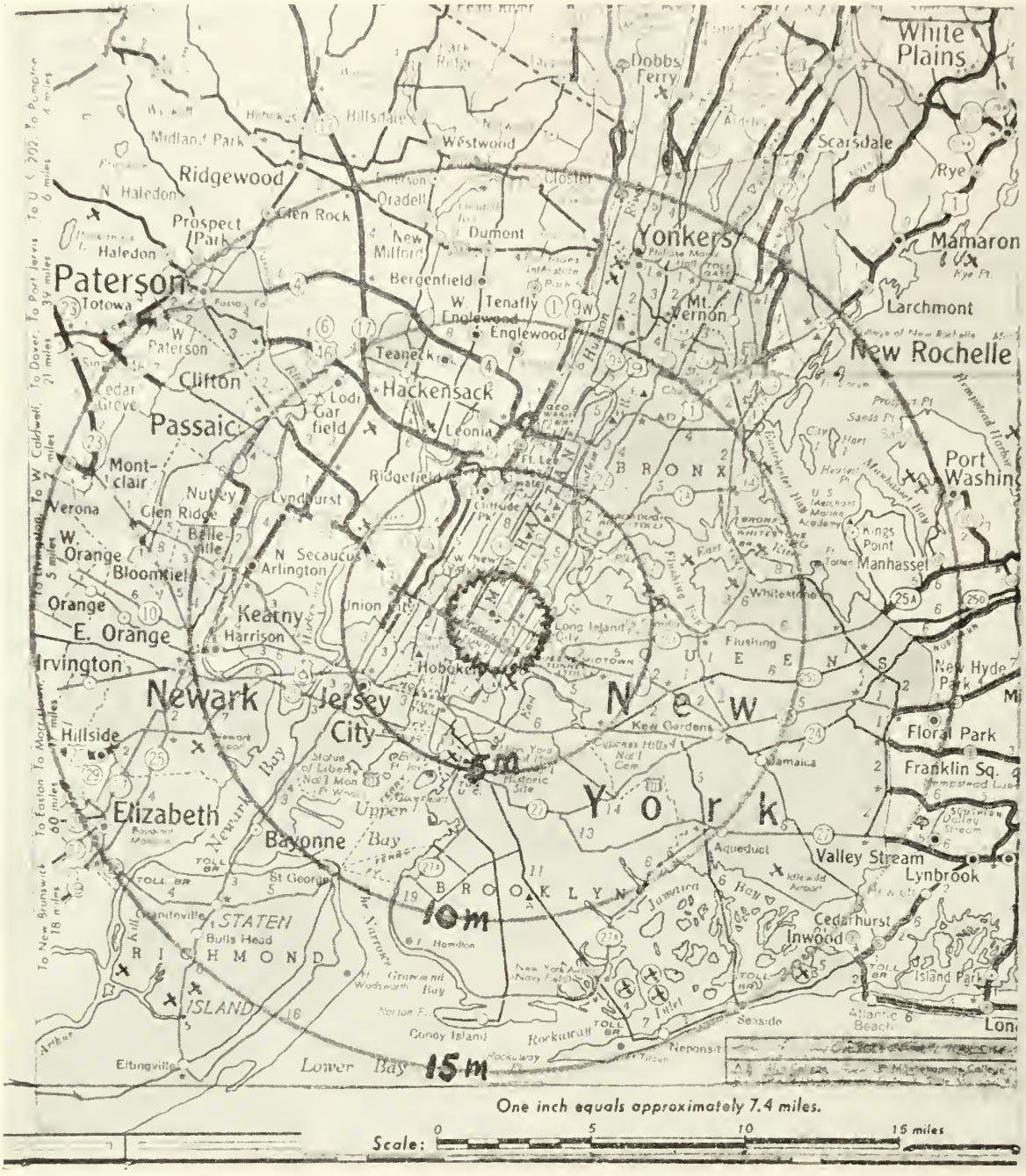



FIGURE 4

This map of Metropolitan New York and surrounding regions, above, shows the comparative areas of complete destruction that would follow the detonation of an A-bomb high in the air over the southern end of Central Park (small saw-tooth circle encloses this area) and of the contemplated new and potentially much more powerful H-bomb. (The larger circles with a radius of 10 and of 15 miles enclose the estimated areas for the latter missile.)

Bethe in a recent publication in the April, 1950, issue of the "Scientific American" has called attention to the well established scientific fact that the radius of destruction by blast from a bomb increases as the cube root while the radius of heat radiation increases with power at a higher rate than that of blast, namely by the square root of the power of the bomb. Therefore, if one assumes that an H-bomb is 1,000 times as strong as the Hiroshima bomb which latter type A-bomb caused severe destruction within a radius of one mile and fatal burns up to a distance of 5,000 feet from the center, it would seem probable that such an H-bomb would cause almost complete destruction of buildings up to a radius of 10 miles and would produce fatal burns over a radius of up to 20 miles or more. This would mean that a city like Boston with all its suburbs and most of its inhabitants would be wiped out in a single H-bomb burst (figure 4).

Mr. Hans Bethe has stated:[7] "We can assume, I think, that it is certain that a bomb used in war will be at least a hundred times as big as the present atomic bomb. The figure of a thousand has been used, and I use it for the sake of argument."

"What would it mean if you had a bomb which is a thousand times more powerful than the present atomic bomb? This would mean that the range of blast destruction would increase tenfold — then a hundred times the area would be destroyed as by an atomic bomb. If a bomb were exploded at some place, then ten miles away from it there would be almost complete destruction. That would mean that a city as big as New York, the biggest city on earth, could be destroyed by one single bomb." Comparative areas of destruction of an A-bomb and of an H-bomb have been shown on figure 4.

Mr. Frederick Seitz, Research Professor of Physics at the University of Illinois, had this to say about the number of flash burns that could be expected after the detonation of a hydrogen bomb: "It is generally known that about 30 percent of the casualties at Hiroshima resulted from flash. The flash extended out to about two-thirds of a mile. Now, the indications are that the flash effect would be at least thirty times larger in the H-bomb. That means that the flash effect would extend out to twenty miles, so that people would suffer severe flash burns at that distance."[7]

Mr. Leo Szilard, Professor of Biophysics at the University of Chicago and a pioneer in nuclear physics, has stated: "It is a mistake, I believe, to talk about the cost of the weapon. If we build H-bombs and if the arms race is on, what will cost us most is not making H-bombs but rather the defense measures which we will be forced to take. Our coastal cities are highly vulnerable against bombs. We cannot have advance fighter bases to defend New York or Baltimore or Washington. If we go into this arms race at all, it will be lunacy not to take defense measures. In the case of these coastal cities, it means dispersal of the population."

"If I try to figure out in terms of dollars what the president's decision means, I would say that within a few years we will be up to twenty-five billion dollars as a general defense expenditure — including fighter planes, fighter bases, radar screen. As for dispersal purposes, I think that we will spend at least fifteen billion dollars a year. This makes a total of forty billion dollars. But when I talk of forty billion dollars per year for defense, I assume that we are balancing the budget, because if we do not balance the budget, we will have inflation, and the figure in dollars will be very much higher."

Mr. Hans Bethe stated: "I am surprised that you (Mr. Szilard) are using such a small figure as fifteen billion for dispersal. Do you not want to disperse the inland cities, too? Is it not likely that they also will be attacked by planes or, maybe, by guided missiles?"

"It certainly seems hardly to make sense to go into offensive H-bomb development without the defensive development to accompany it."

Mr. Harrison Brown, Associate Professor of Chemistry, University of Chicago, formerly assistant director of the Plutonium Project, Oak Ridge, answered Mr. Bethe's questions as follows: "It seems reasonable that the inland cities are less vulnerable due to the possibility of setting up rather elaborate ground-base radar screens and so forth. I certainly agree with Szilard that our coastal cities are far more vulnerable. However, if we do think in terms of dispersing our inland cities, such as Detroit and Chicago, that will add enormously to the estimate of the expense which you have already made, Szilard."[7]

Mr. Szilard further stated: "I was thinking in terms of dispersing within ten years, and I did not go beyond fifteen billion dollars because I think we cannot afford to pay more. If we want to disperse all our cities, we would probably have to spend something like twenty-five billion dollars a year; and in ten years we could have very good dispersal."

"I would say that about thirty to sixty million people would have to move in a general dispersal; and I would think that before we would do that, we would take care of our coastal cities. This other would be a later stage."

"It certainly would mean planned movement. It would mean controls much stricter than we ever had during wartime. It would be not a New Deal, but a Super New Deal."

These experts on the atomic bomb and on the H-bomb have been extensively quoted primarily in

order to give an idea of their thinking on the subject and to give the reader a better conception of the terrific magnitude of the task which confronts this nation when it comes to providing an adequate passive civil defense and public safety defense plan. The problem for the nation is one of dispersal of industries and of highly trained civilian personnel in vulnerable coastal cities that have war production plants or other vital installations such as the seat of government or of key transportation centers, etc. This dispersal would have to be done entirely at federal government expense and would cause an enormous economic upheaval in this country.

Fortunately, those of us who live in Maine will not be confronted with the necessity for large scale dispersal of our coastal or inland cities, nor will we have to prepare for a defense against the H-bomb; as there are no cities of sufficient size within this state which could not be satisfactorily disabled by a single "baby" type atomic bomb. Hence, it would be senseless to select an H-bomb for use on any of our Maine cities and towns.

On the other hand, there are a few cities within this state that have definite military or strategic value; and it is essential that we proceed on the assumption that there may be a third world war or a civil catastrophe of magnitude sometime in the forseeable future which will make it advisable and essential to our local security that we proceed with the blueprinting of a civil defense and public safety organization that will be adequate to cope with an attack on our own cities by an enemy nation. We cannot afford to leave to chance or to hurried last minute action, the technicological preparations which alone will cut down the enormous casualties if these new bombs are dropped upon our closely packed civilian centers.

*Education:* Estimates of the number of casualties which would result from the detonation of an atomic bomb high in the air above one of our modern industrial areas have varied between 15,000 and 200,000 in a city of a quarter of a million persons. However, it would appear that we could safely agree with Major A. J. Bauer when he said the casualties involved would be in the 10's of thousands. Of this number approximately one-half would be lethal while the other half would have sustained shock injuries of various types; fractures, burns and radiation injuries. It is felt that, if the individual civilian and soldier in such a city were adequately trained as to what he could do for himself after the detonation occurs, perhaps 10,000 lives could be saved. The development of atomic defense for the individual will be the subject of much work in the future. Large numbers of persons, both civilian and military, must be educated for special jobs in atomic warfare and this education will probably be given to such people as radiologic safety personnel, medical officers, civilian doctors, and civil defense technicians. The psychological preparation that will be attained in the population will be determined to a large extent by the individual indoctrination and the specialized training given. It is essential that the proper degree of knowledge be imparted to all so that each individual will have a respect for the special hazards of atomic warfare and, thereby, avoid the undesirable extremes of excessive fear or of ignorance.[4]

Much detailed defense planning will be required if the nation is to have a proper emergency civilian medical defense. Large scale training of such specialists as fire fighters, evacuation control personnel, first-aid personnel and decontamination groups must be included in the Civil Defense and Public Safety Program. Large stock piles of food supplies, medical supplies and disaster equipment should be accumulated in relatively invulnerable locations. Mutual aid agreements between cities and other major installations will be needed and should be drawn up and approved. Civil and military groups alike must be equipped and trained in the detection and isolation of contaminated areas. Since this new hazard created by nuclear radiation cannot be detected by any of the physical senses, special instruments such as Geiger counters (figure 2) radiac sets (figure 3), film strips, etc., will be required. With a few minutes advanced warning of an attack and sufficient indoctrination, it is quite possible that a 50 percent saving in casualties can be effected.[4]

*B. — Active Defense*

Active defense is of less direct importance to the medical profession but is of major importance to the nation. The prevention of enemy attacks on our major industrial areas with missiles with atomic or hydrogen war-heads is essential if large numbers of casualties and a more important amount of disorganization and dislocation are to be prevented and our ability to defend ourselves and to wage retaliatory attacks upon the enemy is to be preserved. Active defense will be primary concern of our armed forces; and the basic responsibility of our military organizations require that they assume that war will occur. The national defense organizations should constantly maintain the highest level of preparedness. In the case of atomic warfare this will consist of extensive stock-piling of all weapons including atomic bombs and of maintaining in readiness our retaliation forces. Because of the nature of the atomic bomb, our ability to retaliate and to conduct an offensive war will require extensive protection against enemy attack and the provision of this protection will, in part, be a responsibility of our Civil Defense and Public Safety Organization.

As was pointed out above, advance warning of an impending enemy attack is of paramount importance. The principal element of our preparation for possible surprise attack is an intelligence system of high effectiveness, capable of warning the government and the department of defense well in advance if an attack is being prepared. Vannevar Bush has declared: "We need a modern intelligence agency in every sense of the word, using modern methods as they were partially developed during the last war, not a musical-comedy affair or a stodgy refuge, not even the half-successful affair we now have, but an organization qualified to meet our needs in this kind of world. It can cut down the threat of surprise attack. It does not cost much; by all means let us have it."[9]

Our authorities on guided missiles have openly stated that it was their belief that guided missiles could not be used to carry an atomic bomb for at least another eight years. Therefore, it would appear that manned aircraft would be the mostly likely vehicle to be used for transporting atomic or hydrogen bombs over intended targets during this ensuing eight-year period.

In the past there has been only a fair degree of success in the interception of bomber aircraft on missions. As a consequence the articles in the press have, until recently, given support to the belief that the interception of an atomic bomb carrier would be nigh onto impossible and any attempt to do so was practically futile.

Recently, however, such an eminent authority as Mr. Vannevar Bush has pointed out reasons why bombers will have it tough in the future.[9, 10] Fortunately, from the active defense point of view, the days of mass bombing may very soon have reached their end for reasons which will now be enumerated.

To penetrate a defense equipped with an early-warning radar screen, jet fighters armed with rocket missiles, ground controlled guided missiles propelled by ram-jet engines which can be fired from a gun and which are equipped with complex homing devices to bring them to the point where the proximity fuse in the nose will detonate them with lethal effect, will constitute an appalling task for any enemy bomber fleet. With all these new defense weapons at our disposal and in sufficient quantity it should be possible to intercept or to shoot down almost 100% even of the high altitude enemy bombers before they could reach their targets.

Our ground defense against enemy land attackers has been greatly augmented and strengthened by the proximity fuse in artillery shells. The advent of this proximity fuse, which contains a small radio set in the nose that triggers the shell at a predetermined distance above the ground, has increased the effectiveness of artillery against personnel in the open by perhaps as much as ten times. This gain has been equivalent to having ten times as much artillery at work. There is a strong turn in favor of the defense when the artillery effect is multiplied against the attacking troops in the open as they are advancing against well-manned defenses.

Furthermore, mine fields adequately covered by artillery or mortars with proximity fuses presents a most formidable barrier which mere combinations of tanks and men cannot penetrate. The light rocket-firing bazooka and the new inexpensive, but powerful and easily movable recoilless gun with a low silhouette have added greatly to the effectiveness of the defending forces. A tank advancing into a country infested with bazooka weapons and recoilless guns would be very promptly and effectively put out of action.

The above examples are sited as strong indications that the days of mass bombing may be approaching their end. There would now appear to be no scientific reason why our degree of interception of long range enemy bombers or of long range enemy guided missiles cannot be raised to nearly 100 percent if sufficient money, time and technical ability are put on mastering these problems. Atomic and hydrogen bomb warfare presents a truly horrible outlook. It is our duty to remain ever alert and at all times adequately prepared to meet any enemy attack from without or within our borders and to push to the utmost any procedure that could possibly reduce the effectiveness of such an attack against us.

An efficient Civil Defense and Public Safety Organization should go far toward maintaining civilian morale and guaranteeing the internal security of our nation against enemies both from within and without our borders. Therefore, it is hoped that every Maine physician will measure his obligations toward the future, will accept his responsibility for the safety and for the survival of the great masses of the population, if a new conflict should come, and will cooperate wholeheartedly in a steady improvement of the defenses which must be prepared and the technological preparations which must be made in order that the enormous casualties can be reduced should these new atomic or hydrogen bombs ever be dropped by an enemy nation over our densely populated civilian centers.

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## THE 1950 ANNUAL SESSION GOLF TOURNAMENT

Thirty-five entrants participated in the 1950 annual session Golf Tournament. Prizes were very generously contributed by the Commercial Exhibitors.

Following is a list of winners, prizes and donors of prizes:

Dr. Martyn A. Vickers, Bulova Watch, U. S. Vitamin Corporation.

Dr. Francis A. Winchenbach, Wyacillin, Wyeth, Inc., and special awards presented by Dick Tadgell and Jack Dalton.

Dr. Lloyd Brown, Humidifier, E. F. Mahady Company.

Dr. E. J. Reynolds, Hot and Cold Server, Geo. C. Frye Co.

Dr. Edmund N. Ervin, Thermos Jug, Maine Medical Association.

Dr. Forrest C. Tyson, Heating Pad, The Thomas Reed Co.

Dr. Harold E. Small, Billfold, Sharpe & Dohme Co.

Dr. John F. Dougherty, Combination Barometer, Maine Medical Association.

Dr. George J. Robertson, Desk Clock, Mead Johnson & Co.

Dr. Raymond A. Tougas, Medical Case, The Zemmer Company.

Dr. George L. Maltby, $10.00 Gift Certificate, Schering Corporation.

Dr. Norman E. Cobb, Cory Knife Sharpener, Surgeons' and Physicians' Supply Co.

Dr. William Spear, Hot and Cold Server, Geo. C. Frye Co.

Dr. Stephen A. Cobb, Portable Refrigerator, Surgeons' and Physicians' Supply Co.

Dr. Carl E. Richards, Book, F. A. Davis Co., and $10.00 Gift Certificate, Lanteen Medical Laboratories.

*Ladies:*

Mrs. Harold E. Small, Table Lighter and Cigarette Holder, Maine Medical Association.

Miss Louise Trainor, Six Golf Balls, The DoHo Chemical Corporation.

Mrs. George L. Maltby, Cigarette Chest, Philip Morris & Co.

Mrs. Horace L. Gauvreau, Towel Set, The Upjohn Company.

Mrs. Vincent H. Beeaker, Desk Set, Mead Johnson & Company.

Mrs. Vincent Streigel, Towel Set, The Upjohn Company.

*Guest:*

Mr. Leonard Read, Table Lamp, The P. J. Noyes Company.

Dr. Vickers' 76 was an exceptional round of golf, and but for a disastrous 7 on the par 4 15th hole, he would have won the tournament outright.

Our excellent guest speaker, Leonard Read, scored a hole in one on the 200-yard 8th. He was not excited about the affair for it was the fifth in his golfing career.

FRANCIS A. WINCHENBACH, M. D.,
*Chairman, Golf Tournament.*



FOSTER C. SMALL, M. D.

*President, Maine Medical Association*

*1950 - 1951*

# FOSTER C. SMALL, M. D.

## President, Maine Medical Association

## 1950 - 1951

Foster C. Small, M. D., of Belfast, took over his duties as President of the Maine Medical Association, Tuesday evening, June 20, at Poland Spring, Maine, at the close of the 96th annual session.

Dr. Small was graduated from the University of Vermont Medical School in 1912, and has practiced medicine in Belfast since that time. He is a member of the Surgical Staff of the Waldo County General Hospital in Belfast, and was Mayor of that city for several terms.

He was Councilor for the Fourth District of the Maine Medical Association for one three-year term, the last of which he served as Council Chairman. He has served on various Association committees, and has been an active member of his county society.

We are looking forward to a very successful year with Dr. Small serving as our President.

# Maine Medical Association Officers Elected

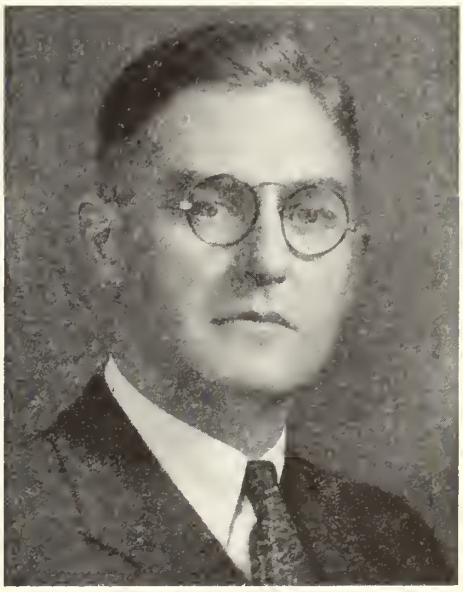
at the

## 96th ANNUAL SESSION

*POLAND SPRING* *JUNE 18, 19, 20, 1950*



C. HAROLD JAMESON, M. D., Rockland
*President-elect*



EUGENE H. DRAKE, M. D., Portland
*Council Chairman, 1950-1951*

### COUNCILORS

THIRD DISTRICT:

ROBERT W. BELKNAP, M. D., Damariscotta
1953

FOURTH DISTRICT:

RAYMOND L. TORREY, M. D., Searsport
1953



ROBERT W. BELKNAP, M. D., Damariscotta
*Councilor*

# EDITORIAL

## THE NINETY-SIXTH ANNUAL SESSION

The Ninety-sixth Annual Session of the Maine Medical Association was held at the Poland Spring House, June 18, 19 and 20, 1950, with a member registration of 301. This is one of the largest member registrations on record. There was a guest registration of 340, which included members of the Woman's Auxiliary, guest speakers and exhibitors.

The meeting was officially called to order at 3.00 P. M., Sunday, June 18, with the First Meeting of the House of Delegates. Dr. Foster C. Small, President-elect, presided at this meeting. There were twenty-seven delegates present.

First on the Order of Business was the appointment of a Reference Committee consisting of Drs. Clyde I. Swett, William A. Purinton, Charles R. Geer, Paul S. Hill, Jr., Walter G. Dickson and James H. Crowe.

A Nominating Committee was appointed to draw up a slate of Standing Committee members for 1950-1951. (This committee and their report as presented and approved is published elsewhere in this issue of the JOURNAL.)

The Council Report for 1949-1950 as presented by Council Chairman, Dr. C. Harold Jameson, was approved, and will be published in a later issue of the JOURNAL, as will the report of the Executive Secretary, Councilor and Committee reports not published in the June issue of the JOURNAL, the report of the Delegate to the American Medical Association and of delegates to the New England Medical Societies.

The Council recommended Budget for 1950-1951, which totalled $24,725.00 was approved, plus $500.00 requested by Dr. Martyn A. Vickers for the State Committee for National Education. The Budget follows:

| | |
|---|---|
| Secretary-Treasurer's Office: | |
| President's Expenses | $ 425.00 |
| Salaries: | |
| Secretary-Treasurer, Editor | 4,500.00 |
| Assistant Secretary | 3,000.00 |
| Expenses: | |
| Secretary-Treasurer (travel) | 200.00 |
| Office | 1,500.00 |
| Committees: | |
| Medical Advisory | 1,000.00 |
| Special | 200.00 |
| State Delegates (New England Medical Societies), and Maine Medical Association Council | 500.00 |
| Delegate—American Medical Association | 500.00 |
| Clinical Session—Maine Medical Association | 300.00 |
| Council—New England State Medical Societies | 100.00 |
| | $12,225.00 |
| Executive Secretary's Office: | |
| Salaries: | |
| Executive Secretary | $ 7,000.00 |
| Secretary | 2,000.00 |
| Expenses—Travel, Office, etc. | 3,500.00 |
| State Committee for National Education Campaign | 500.00 |
| | $13,000.00 |
| Budget—Secretary-Treasurer's Office | $12,225.00 |
| Budget—Executive Secretary's Office | 13,000.00 |
| Total | $25,225.00 |

In accordance with a request made by Dr. Vickers, State Chairman for the National Education Campaign, the following resolutions were sent to Senators Owen Brewster and Margaret Smith.

RESOLVED: That the Maine Medical Association in convention assembled, urges that our Senators favor the resolve of Senator Cain of Washington for a re-study of the Social Security structure, and that further, it opposes any amendment to H.R. 6,000, adding the disability clause to its provisions.

RESOLVED: That the Maine Medical Association, in convention assembled, does hereby express its opposition to Reorganization Plan No. 27, and urges that our Senators vote against said plan.

At the Second Meeting of the House of Delegates, held Monday, June 19, with twenty-four delegates present, Dr. Martyn A. Vickers of Bangor, was elected Delegate to the American Medical Association from January 1, 1951, to January 1, 1953. Dr. Robert W. Belknap of Damariscotta was elected Councilor for the Third District and Dr. Raymond L. Torrey of Searsport, Councilor for the Fourth District.

The suggested Revision of the Constitution and By-Laws was discussed at length and a motion " . . . that the Constitution and By-Laws, as amended and corrected, be adopted . . . ," was duly seconded, and was carried, unanimously. A copy of the revised Constitution and By-Laws will be sent to each member of the Association at a later date.

A motion that the Maine Medical Association change the form of its organization to that of a non-profit corporation, under the name of the Maine Medical Society, with the same membership constituent societies, Districts, Officers, purposes and by-laws as now exist for the Association, was also a subject of much discussion, and it was voted to incorporate under the existing name; "Maine Medical Association."

The following resolution, presented by Dr. Center of Cumberland County, was adopted:

WHEREAS, the practice of medicine in the State of Maine is limited, by law, to those individuals who have been properly licensed and registered so to practice, and

WHEREAS, professional services are separate and distinct from hospital services, and

WHEREAS, the Committee on Hospitals and the Practice of Medicine of the American Medical Association concluded, after consideration of the newly revised Principles of Medical Ethics, that it is illegal, with few exceptions, and unethical for any lay corporation to furnish medical services for a professional fee which shall be so divided as to produce profit for a lay employer, either individual or institutional, including hospitals and medical schools, and

WHEREAS, the Principles of Medical Ethics are the concern of every practitioner of medicine and professional specialties,

NOW, THEREFORE, BE IT RESOLVED, that the Maine Medical Association officially support the principles of the report of the Committee on Hospitals and the Practice of Medicine,

AND BE IT FURTHER RESOLVED: That the Maine delegate to the annual meeting of the American Medical Association in June, 1950, be instructed to continue his support of those principles.

Space does not permit a complete coverage of the "doings" at these meetings of the House of Delegates, but the stenographic report will be published in part in future issues of the JOURNAL. A copy of this report is on file in the Portland office and available to any member of the Association.

The Scientific Program at this session, which was arranged by Dr. Carl E. Richards of Sanford, was excellent. I want to take this opportunity to commend him for a job well done.

### ELECTION OF PRESIDENT-ELECT

Dr. C. Harold Jameson of Rockland, was unanimously elected President-elect of the Maine Medical Association, Monday, June 19, at the close of the First General Assembly.

Dr. Wasgatt of Rockland, very ably sums up his qualifications for this office as follows: "I should like to present to this body the name of Dr. C. Harold Jameson, the retiring Chairman of the Council, as a candidate for President-elect. Dr. Jameson has worked very hard for the Association for a good many years, more than he cares to have enumerated. He has worked on a good many committees. He has been a delegate from his own County, and he has also worked on the Editorial Board of the JOURNAL, . . .".

# STANDING COMMITTEES
## 1950 - 1951

The Standing Committees for 1950-1951 were drawn up by the Nominating Committee, consisting of one delegate from each Councilor District, and accepted at the Second Meeting of the House of Delegates at the 96th Annual Session of the Maine Medical Association at Poland Spring, Maine, June 19, 1950.

### Nominating Committee

*First District*, James M. Parker, M. D., *Chairman.*
*Second District*, Wedgwood P. Webber, M. D.
*Third District*, Wesley N. Wasgatt, M. D.
*Fourth District*, Arch H. Morrell, M. D.
*Fifth District*, James H. Crowe, M. D.
*Sixth District*, P. L. B. Ebbett, M. D.

### Scientific Committee

Franklin F. Ferguson, M. D., Portland, Chairman
Clement S. Dwyer, M. D., Bangor
Loring W. Pratt, M. D., Waterville
Robert W. Belknap, M. D., Damariscotta
The Secretary, ex-officio

### Public Relations Committee

Frederick T. Hill, M. D., Waterville, Chairman
Irving I. Goodof, M. D., Lewiston
M. Tieche Shelton, M. D., Augusta
Warren E. Kershner, M. D., Bath
Theodore C. Bramhall, M. D., Portland
The Secretary, ex-officio

### Committee on Medical Education and Hospitals

Richard S. Hawkes, M. D., Portland, Chairman
Waldo A. Clapp, M. D., Lewiston
Clyde I. Swett, M. D., Island Falls
Gilmore W. Soule, M. D., Rockland
Virginia C. Hamilton, M. D., Bath
The Secretary, ex-officio

### Committee on Social Hygiene

Oscar R. Johnson, M. D., Portland, Chairman
Donald L. Anderson, M. D., Lewiston
Carl E. Blaisdell, M. D., Bangor
Harold W. Stanwood, M. D., Rumford
The Secretary, ex-officio

### Medical Advisory Committee

Allan Woodcock, M. D., Bangor, Chairman
Carl M. Robinson, M. D., Portland
Frank A. Smith, M. D., Westbrook
Philip L. Gray, M. D., South Brooksville
Thomas A. Martin, M. D., Portland
Oscar F. Larson, M. D., Machias
Gerald H. Donahue, M. D., Presque Isle
The Secretary, ex-officio

### Legislative Committee

P. L. B. Ebbett, M. D., Houlton, Chairman
James H. Crowe, M. D., Ellsworth
Roland L. McKay, M. D., Augusta
Francis A. Winchenbach, M. D., Bath
Charles W. Kingborn, M. D., Kittery
W. Mayo Payson, Portland, Clerk
The Secretary, ex-officio

### Rural Health Committee

Norman H. Nickerson, M. D., Greenville, Chairman
Harry Brinkman, M. D., Farmington
Stanley R. Leniest, M. D., Waldoboro
Wallace E. Viles, M. D., Turner
Storer W. Boone, M. D., Presque Isle
Harvey C. Bundy, M. D., Milo
W. Mayo Payson, Portland, Clerk

# SPECIAL COMMITTEES
## 1950 - 1951

The following Special Committees for 1950-1951 were appointed by the President, Foster C. Small, M. D., of Belfast.

### Committee on Graduate Education

Joseph E. Porter, M. D., Portland, Chairman
William V. Cox, M. D., Auburn
George L. Maltby, M. D., Portland
Magnus F. Ridlon, M. D., Bangor
George E. Young, M. D., Skowhegan
Wilfred J. Comeau, M. D., Bangor
M. Tieche Shelton, M. D., Augusta

### Tuberculosis Committee

Loren F. Carter, M. D., Presque Isle, Chairman
Walter R. Gumprecht, M. D., Bangor
Francis J. Welch, M. D., Portland
Lester Adams, M. D., Hebron
George E. Young, M. D., Skowhegan
Rufus E. Stetson, M. D., Damariscotta
Edward A. Greco, M. D., Portland
Dean H. Fisher, M. D., Augusta
George C. Howard, M. D., Guilford

### Committee on Maternal and Child Welfare

Thomas A. Foster, M. D., Portland, Chairman
Clair S. Bauman, M. D., Waterville
Leroy C. Gross, M. D., Auburn
Alice A. S. Whittier, M. D., Portland
Virginia C. Hamilton, M. D., Bath
Theodore M. Stevens, M. D., Portland

### Committee on Industrial Health

Merrill S. F. Greene, M. D., Lewiston, Chairman
Edwin M. Fuller, M. D., Bath
Allan Woodcock, M. D., Bangor
Ernest T. Young, M. D., Millinocket
Albert P. Royal, M. D., Rumford
Albert C. Todd, M. D., Brewer

### Committee on Conservation of Vision

Howard F. Hill, M. D., Waterville, Chairman
S. Judd Beach, M. D., Portland
Dexter J. Clough, 2nd, M. D., Bangor
Warren E. Kershner, M. D., Bath
William R. McAdams, M. D., Portland

### Amy W. Pinkham Fund Committee

P. L. B. Ebbett, M. D., Houlton, Chairman
Virginia C. Hamilton, M. D., Bath
Albert M. Carde, M. D., Milo
Clair S. Bauman, M. D., Waterville
Ella Langer, M. D., Augusta
Thomas A. Foster, M. D., Portland
Norman H. Nickerson, M. D., Greenville

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Charles W. Steele, M. D., Lewiston, Chairman
Ralph A. Getchell, M. D., Portland
Harry Butler, M. D., Bangor

*District Members:*

1st, Albert W. Moulton, M. D., Portland, Deputy Chairman
2nd, Garfield G. Defoe, M. D., Dixfield
3rd, Frederick C. Dennison, M. D., Thomaston
4th, Harold E. Small, M. D., Augusta
5th, M. Allan Torrey, M. D., Ellsworth
6th, John B. Thompson, M. D., Bangor

*Members at Large:*

Roscoe L. Mitchell, M. D., Hallowell
Clarke F. Miller, M. D., Lewiston

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Currier C. Weymouth, M. D., Farmington
Francis A. Winchenbach, M. D., Bath
Edward H. Risley, M. D., Waterville
Philip O. Gregory, M. D., Boothbay Harbor

### Health Insurance Committee

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Clyde I. Swett, M. D., Island Falls
Frank A. Smith, M. D., Westbrook
Theodore C. Bramhall, M. D., Portland
Eugene E. O'Donnell, M. D., Portland
M. Tieche Shelton, M. D., Augusta
Linus J. Stitham, M. D., Dover-Foxcroft
W. Mayo Payson, Portland, Clerk

### Committee to Supervise Training of Nurses' Attendants

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Foster C. Small, M. D., Belfast
Frank A. Smith, M. D., Westbrook
Currier C. Weymouth, M. D., Farmington
C. Harold Jameson, M. D., Rockland
W. Mayo Payson, Portland, Clerk

### Committee on Blood Transfusions

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Joseph E. Porter, M. D., Portland
Gilbert Clapperton, M. D., Lewiston
Joseph A. Donovan, M. D., Houlton
John F. Reynolds, M. D., Waterville

### Cancer Committee

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Forrest B. Ames, M. D., Bangor
Joseph E. Porter, M. D., Portland
Romeo A. Beliveau, M. D., Lewiston
John F. Reynolds, M. D., Waterville
Gordon N. Johnson, M. D., Houlton
The Secretary, ex-officio

### Diabetes Committee

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Frederic B. Champlin, M. D., Waterville
Lyman O. Warren, M. D., Brewer
Charles W. Capron, M. D., Eastport
Gerald H. Donahue, M. D., Presque Isle

### Arthritis Committee

Philip P. Thompson, Jr., M. D., Portland, Chairman
John O. Piper, M. D., Waterville
Robert O. Kellogg, M. D., Bangor
Robert A. Frost, M. D., Auburn

### Committee on Mental Health

Margaret R. Simpson, M. D., Togus, Chairman
Amy L. Cattley, M. D., Lewiston
Gerald H. Donahue, M. D., Presque Isle
Byron V. Whitney, M. D., Bangor
David Davidson, M. D., Portland

### American Academy of Pediatrics

Henry C. Thacher, M. D., Auburn

### State Committee — National Education Campaign

Martyn A. Vickers, M. D., Bangor, Chairman
W. Mayo Payson, Portland, Secretary

Representing the County Medical Societies:

*Androscoggin:*

Paul R. Chevalier, M. D., Lewiston
Irving I. Goodof, M. D., Lewiston
Michael J. Harkins, M. D., Lewiston

*Aroostook:*

Armand Albert, M. D., Van Buren
Gerald H. Donahue, M. D., Presque Isle
Gordon N. Johnson, M. D., Houlton

*Cumberland:*

Theodore C. Bramhall, M. D., Portland
Ervin A. Center, M. D., Steep Falls
George L. Maltby, M. D., Portland
Donald F. Marshall, M. D., Portland

*Franklin:*

Maynard B. Colley, M. D., Wilton
Charles W. Eastman, M. D., Livermore Falls
Currier C. Weymouth, M. D., Farmington

*Hancock:*

Silas A. Coffin, M. D., Bar Harbor
Charles M. Sumner, M. D., West Sullivan
Marcus A. Torrey, M. D., Ellsworth

*Kennebec:*

Frank B. Bull, M. D., Gardiner
Thomas F. Fay, M. D., Augusta
Frederick T. Hill, M. D., Waterville
M. Tieche Shelton, M. D., Augusta

*Knox:*

Paul A. Millington, M. D., Camden
Gilmore W. Soule, M. D., Rockland
Wesley N. Wasgatt, M. D., Rockland

*Lincoln-Sagadahoc:*

Robert W. Belknap, M. D., Damariscotta
Warren E. Kershner, M. D., Bath
Francis A. Winchenbach, M. D., Bath

*Oxford:*

Garfield G. Defoe, M. D., Dixfield
Henry M. Howard, M. D., Rumford
John A. Matheson, M. D., Bethel

*Penobscot:*

Paul W. Burke, M. D., Newport
Wilfred I. Butterfield, M. D., Lincoln
Herbert T. Clough, Jr., M. D., Bangor
Martyn A. Vickers, M. D., Bangor

*Piscataquis:*

Guy E. Dore, M. D., Guilford
George C. Howard, M. D., Guilford

*Somerset:*

Maurice E. Lord, M. D., Skowhegan
George E. Sullivan, M. D., Bingham

*Waldo:*

Richard P. Jones, M. D., Belfast
Seth H. Read, M. D., Belfast

*Washington:*

Norman E. Cobb, M. D., Calais
Oscar F. Larson, M. D., Machias
H. John Young, M. D., Jonesport

*York:*

William F. Mahaney, M. D., Saco
James H. Macdonald, M. D., Springvale
Carl E. Richards, M. D., Sanford

Representing the Maine Dental Society:

Dr. Alonzo H. Garcelon, Augusta
Dr. Frank P. Gilley, Bangor

Representing the Maine Pharmaceutical Association:

Mr. Harold Owen, President, Milo
Mr. Francis A. Frawley, Executive Secretary, Bangor

### Medical School for Maine

Eugene H. Drake, M. D., Portland, Chairman
Frederick T. Hill, M. D., Waterville
Donald F. Marshall, M. D., Portland
Forrest B. Ames, M. D., Bangor
Stephen A. Cobb, M. D., Sanford

## COUNTY SOCIETIES

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President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Paul A. Jones, M. D., Union
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**Lincoln-Sagadahoc**
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Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Linwood M. Rowe, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, John B. Curtis, M. D., Milo
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Albert J. Bernard, M. D., Skowhegan
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Cumberland

A regular meeting of the Cumberland County Medical Society was held on May 22, 1950. This was an unusual meeting, as it was a joint meeting of the Cumberland County Medical Society and the Maine Dental Society. We met for dinner in the Mayfair Room of the Lafayette Hotel and proceeded with the program immediately afterwards.

Dr. Alex Burgess, of Providence, spoke on Oxygen Therapy. He first went into some detail to explain the various causes and reasons for oxygen needs and their classification. He used a rather ingenious set of diagrams to demonstrate these types which made them readily understandable. The remainder of his talk had to do with treatment and the equipment available to administer the oxygen. Two speakers followed, Dr. V. H. Kazangian, Professor Emeritus of Harvard School of Dental Medicine and Dr. Stanley Lane, Associate Professor at Columbia University, both with the same subject — Oral Cancer. In each case, their talks were centered around a rather large series of lantern slides depicting various varieties and types of oral cancer. It was an instructive and pleasant evening and many of the Society members expressed the desire to make this joint meeting an annual affair.

Ralf Martin, M. D.,
*Secretary.*

## Lincoln - Sagadahoc

A regular meeting of the Lincoln-Sagadahoc Medical Society was held at 6.30 P. M., June 15, 1950, at the Ledges, Wiscasset, Maine. There were fourteen doctors present.

A clinical program was put on by the Bath doctors.

1. Case of a man 47 years old with a mass in left side. Laparotomy and biopsy showed a sarcoma of kidney and involving diaphragm and intestines. X-ray therapy did not help and case is still living, but emaciated with ascites. Dr. Francis A. Winchenbach presented the case.

2. Dr. Doherty presented the case of a woman who had two children normally, and on the third, after X-rays showed a congenital hip dislocation, with an angulated pelvis and disproportion of pelvis and head. Caesarean Section was done with good results.

The Society went on record as favoring compulsory vaccination.

Neil Parsons, M. D.,
*Secretary.*

## Oxford

The semi-annual meeting of the Oxford County Medical Society was held at Bethel Inn, Bethel, Maine, June 14, 1950.

The resignation of Dr. John Matheson, who has moved to Long Island, was received.

The appointment of Dr. G. G. Defoe as Director of the county's activities in Civil Defense and Public Safety was approved by the Society.

At the Scientific Session a very fine group of cases of skin carcinoma and other localized skin lesions was presented by Dr. Joseph E. Porter of Portland.

D. E. Elsemore, M. D.,
*Secretary.*

# New Members

## Cumberland

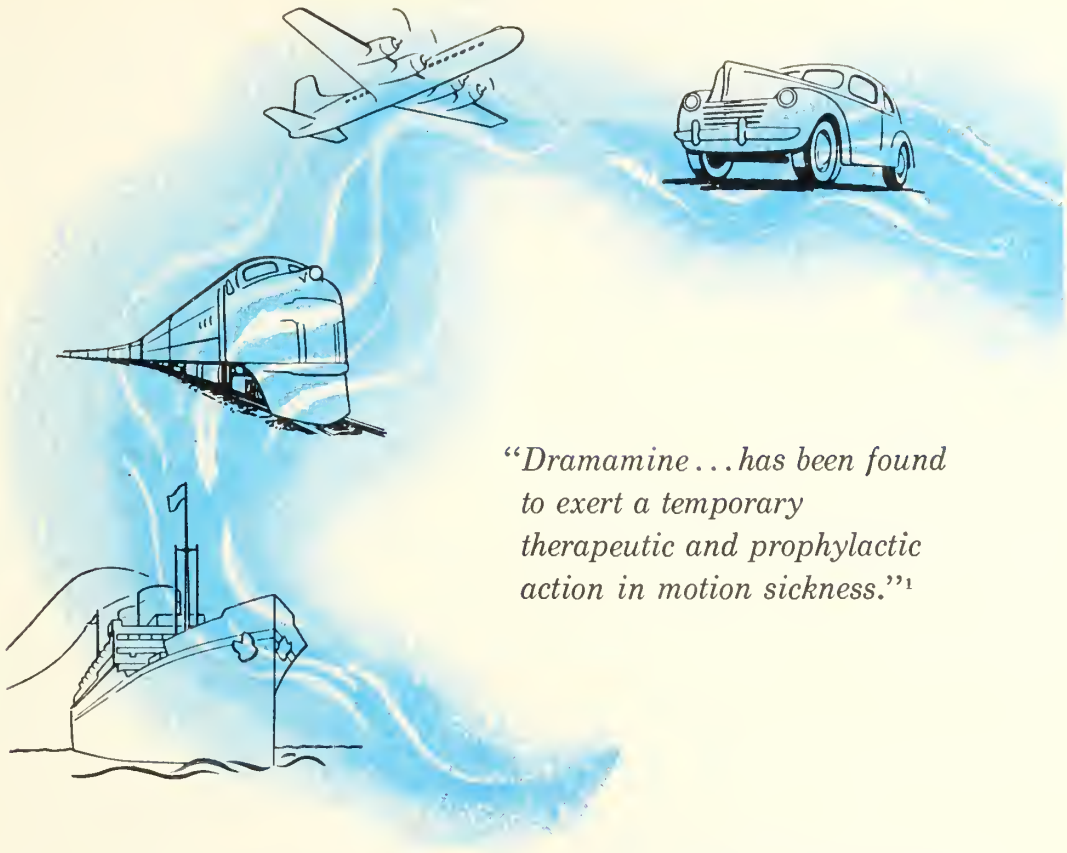
*George O. Cummings, Jr., M. D.*, Syracuse, New York.

*Edward M. Cook, Jr., M. D.*, 22 Arsenal St., Portland, Maine.

*Jackson S. Pogue, M. D.*, Portland, Maine.

## Coming Meetings

*The Ninth New England Postgraduate Assembly* will be held at the Hotel Statler, Boston, Massachusetts, November 6, 7, and 8, 1950.



*"Dramamine . . . has been found to exert a temporary therapeutic and prophylactic action in motion sickness."*[1]

# Dramamine

## for the Prevention or Treatment of Motion Sickness

Unusually satisfactory results have been obtained with Dramamine* (brand of dimenhydrinate) as a prophylactic or active therapeutic agent for the relief of nausea, vomiting or dizziness, which many individuals experience in travelling by ship, airplane, train and other vehicles.

1. Council on Pharmacy & Chemistry: New and Non-official Remedies, 1950, Philadelphia, J. B. Lippincott Co., 1950, p. 460.

*Trademark of G. D. Searle & Co., Chicago 80, Ill.

SEARLE

RESEARCH IN THE SERVICE OF MEDICINE

# NEWS AND NOTES

## Classes for Diabetic Out-Patients Eastern Maine General Hospital Bangor, Maine

Diabetic patients seldom present a difficult problem in diagnosis; and only infrequently is regulation difficult if the patient is well-informed. To provide help with the troublesome problem of instructing the diabetic, the Medical Service of the Eastern Maine General Hospital is offering educational services by means of weekly "Classes for Diabetics."

Patients — either "House Service" or "Private" — will be accepted by referral only. It should be noted that the purpose is solely educational and that no attempt will be made to regulate by means of changing insulin or dietary prescription. Each patient will be instructed to keep in close touch with his Doctor, who will remain responsible for his medical supervision.

Patients will be urged to purchase a copy of one of the standard diabetic manuals. "Diabetic Care in Pictures" by Rosenthal, Stearn and Rosenthal is recommended. They will be taught to sterilize equipment by means of alcohol, and will be instructed in the "Clinitest" method of urine testing.

Each patient should attend at least two series of classes. Classes will meet each Monday, Wednesday and Friday at 11.00 A. M. in the Medical Follow-Up Clinic Room.

The following subject matter will be considered:

I. Presented by the E. M. G. H. School of Nursing — Monday:
   - A. How is the urine tested for sugar?
   - B. How do you measure the proper dose of insulin?
   - C. How is insulin given?
   - D. What special attention must be given to the feet?
   - E. What should you do if you develop fever, or a sore throat, or diarrhea?
   - F. How should you keep a record of your urine tests to take to your Doctor on your regular check-up visits?

II. Presented by the Medical Service — Wednesday:
   - A. What is diabetes?
   - B. What are the common symptoms and what causes them?
   - C. Why does a diabetic have to control his diet?
   - D. Why do so many diabetics have to take insulin?
   - E. What does insulin do?
   - F. What are the various types of insulin?
   - G. What is an insulin reaction?
   - H. What is diabetic coma?

III. Presented by the Hospital Nutritionist — Friday:
   - A. How to keep to your diet carefully without trouble or unnecessary expense.
   - B. How to use the lists of exchanges to provide a varied diet.
   - C. Adjustment of diet to special racial or social or economic factors.

Apointments can be made by telephoning the Clinic Supervisor on Monday, Tuesday, Thursday or Saturday mornings.

EASTERN MAINE GENERAL HOSPITAL,
F. C. CURRAN, *Director.*

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## Arthritis Clinic Eastern Maine General Hospital Bangor, Maine

An Arthritis Clinic will be established in Bangor at the Eastern Maine General Hospital, and in Portland at the Maine General Hospital. The Clinic at this Hospital will be staffed by the Medical Service. It will meet in the Out-Patient Clinic Rooms on the last Monday of each month from 9.00 A. M. to 12.00 Noon, opening on May 29, 1950.

Patients may be referred to this Clinic through the following channels: the Accident Room House Officer, directly from Hospital Wards, or by the Private Physician if he so desires.

Appointments may be made by telephoning the Clinic Supervisor on Monday, Tuesday, Thursday or Saturday mornings.

EASTERN MAINE GENERAL HOSPITAL,
F. C. CURRAN, *Director.*

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## Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

### ORTHOPEDIC CLINICS

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

### CARDIAC CLINICS

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

### HARD-OF-HEARING CLINICS

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

### PEDIATRIC CLINIC SCHEDULE — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

## Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

*Portland* — Health and Welfare Department, 178 Middle Street. Every Tuesday.

*Lewiston* — Out-Patient Department, Central Maine General Hospital. Every Monday.

*Augusta* — Bureau of Health, Division of Mental Health. By Appointment.

*Waterville* — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

*Bangor* — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main office of the Division of Mental Health — State House, Augusta.

*Patients are seen by appointment only.* Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

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## Venereal Disease Clinics

The Department of Health and Welfare, Bureau of Health, maintains facilities for the diagnosis and treatment of venereal diseases in the following locations:

Augusta, Bangor, Bath, Belfast, Biddeford,
Lewiston, Portland, Rockland, Rumford,
Sanford, Waterville, Wilton and Winthrop.

Any physician wishing to refer an indigent person for diagnosis or treatment may obtain the name of the nearest clinic physician by contacting the Department of Health and Welfare, Bureau of Health, State House, Augusta, Maine. If no clinic facilities are available, physicians will be authorized to treat indigent patients in their offices. Authorization should be requested before treatment is started.

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## Announcement

## Arthritis Clinic

An out-patient clinic for Arthritis sponsored jointly by the New England Chapter of the Arthritis and Rheumatism Foundation and the Maine General Hospital has been established at the Maine General Hospital.

The first clinic was held on January 16, 1950. For the present this clinic will meet at 9.00 A. M. on the third Monday of each month.

This clinic will function as a consultation clinic. Patients will also be treated on a clinic basis if the referring physician so desires, or will be referred back. Patients able to pay are expected to pay the usual clinic rates.

## Courses in Anesthesiology for General Practitioners

The Maine Society of Anesthesiologists, in coöperation with the American Society of Anesthesiologists, is offering refresher courses for general practitioners. Membership in the society is not essential.

Efforts will be made to make the program flexible so that the practicing physicians may secure the training necessary to fit their individual needs. The duration of instruction will be arranged according to individual circumstances—e.g., one-day sessions at weekly intervals, or continuous courses of a week's duration or longer.

Instruction in all or any of the phases of Anesthesiology will be available, including Transfusion and Oxygen Therapy. Courses will consist of lecture, demonstrations and, when possible, anesthetic management of patients under supervision Fees will be restricted to an initial registration fee of five dollars.

Three training centers in the state have been designated as follows:

Bangor — Instructor — Dr. Clement Dwyer, Director of Anesthesia, Eastern Maine General Hospital.

Lewiston — Instructors — Dr. Gilbert Clapperton, Director of Anesthesia, Central Maine General Hospital. Dr. Dominique Martel, Director of Anesthesia, St. Mary's General Hospital. Dr. Leslie Parent, Associate Director of Anesthesia, St. Mary's General Hospital.

Portland — Instructors — Dr. John R. Lincoln, Director of Anesthesia, Maine General Hospital. Dr. Robert W. Agan, Assistant, Department of Anesthesia, Maine General Hospital.

Physicians interested in such a program are urged to contact the center nearest to them for further information. Scholarships are available for Maine physicians through the Bingham Fund for those interested in pursuing such courses for one week or longer.

Gilbert Clapperton, M. D., *President,*
Maine Society of Anesthesiologists.
John R. Lincoln, M. D., *Secretary,*
Maine Society of Anesthesiologists.

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## Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

## Neurosurgical and Convulsive Clinics at the Maine General Hospital

Neurological and Neurosurgical Clinics, both therapeutic and diagnostic, are held at the Maine General Hospital, Portland, on the 1st and 3rd Thursday of each month at 2.00 P. M. The convulsive clinic, designated for the diagnosis and treatment of epilepsy and other convulsive disorders, is held at the same time on the 2nd Thursday of each month.

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## Arthritis and Rheumatism Foundation New England Chapter

One of the declared functions of the New England Chapter of the Arthritis and Rheumatism Foundation is to promote better medical and public understanding of the rheumatic diseases. While this does not imply that the Foundation is called upon to make known an assessment of every new method of therapy in such conditions, glaringly misleading advertising to profession and public of products which seemingly bear the stamp of scientific approval should not be allowed to pass unchallenged. Such a product is Glucurone (glucuronolactone), recently given wide publicity both to doctors through the mails and to the laity through press releases. At a meeting of the Medical and Scientific Committee of the New England Chapter of the Foundation held on January 21, 1950, it was voted that a communication in regard to the status of Glucurone as a therapeutic agent in arthritis be sent to the medical journals published in the New England area.

The advertising matter in this instance has been cleverly composed in a way to lead the casual reader to conclude that (1) glucuronic acid deficiency is of basic importance in the pathogenesis of the rheumatic diseases, (2) that glucuronic acid may have an important remedial role in these conditions as a detoxifying agent, and (3) that notable therapeutic success has been obtained in carefully controlled studies by the use of Glucurone in various forms of arthritis. None of these conclusions is upheld by scientific or clinical observations to date.

In one brochure circulated to the medical profession and in certain press releases, references to ACTH and Cortisone are carefully worded and so appropriately placed as to imply that Glucurone is the next best therapeutic agent and has the obvious advantages of being more readily available and much less expensive. As far as rheumatoid arthritis is concerned, essentially negative results have been obtained in the treatment of 20 patients with Glucurone by the Arthritis Clinic of he Massachusetts General Hospital, Boston. Unpublished results from other large clinics are in agreement.

For the reasons stated above, the Committee feels justified in advising the medical profession that no basis has yet been established for the introduction of Glucurone as a remedy in the rheumatic diseases.

For the Committee:

Sven M. Gunderson, M. D.,
Francis C. Hall, M. D.,
Charles L. Short, M. D.,
Charles W. Steele, M. D.,
Hiram E. Upton, M .D.

By: Hans Waine, M. D.,
*Medical Director,*
New England Chapter,
Arthritis and Rheumatism Foundation.

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# HOSPITAL NOTES

## Henrietta D. Goodall Hospital, Inc. Sanford, Maine

The April Staff Meeting of the H. D. Goodall Hospital was held on the 11th. The guest speaker was Dr. Henry S Finkel of Boston, Mass., Assistant Professor of Obstetrics, Tufts Medical School; Obstetrician-in-Chief, Evangeline Booth Hospital; Obstetrician, Beth Israel Hospital, Boston, Mass. His subject was: "Office and Hospital Management of the Obstetrical Patient." Among those present were: Drs. R. S. Belmont, M. Bacon, S. A. Cobb, W. E. Dionne, O. B. Head, E. W. Holland, W. H. Kelly, A. S. Lincourt, W. L. Morse, J. C. Myer, J. H. MacDonald, M. K. Moulton, H. D. Ross, C. E. Richards, and R. D. Vachon. An interesting meeting was held and a delicious dinner was served.

On Tuesday, May 9th, the principal speaker at the dinner meeting of the staff was Dr. William C. Maloney, Boston, Mass., Clinical Professor of Medicine, Tufts Medical School; Assistant Director of First and Third Medical Services, Boston, Mass. His subject was: "Recent Advances in Diagnosis and Treatment of Blood Dyscrasias." Among those present were: Drs. M. Bacon, R. S. Belmont, S. A. Cobb, W. E. Dionne, O. B. Head, E. W. Holland, W. H. Kelly, A. S. Lincourt, W. L. Morse, J. C. Myer, J. H. MacDonald, M. K. Moulton, H. D. Ross, C. E. Richards, and R. D. Vachon.

During the month of May, the Staff of the Goodall Hospita visited the Beth Israel and the Booth Memorial Hospitals of Boston, Mass. in two groups. The first group designated to make this trip May 17th was composed of the following: Drs. M. Bacon, S. A. Cobb, W. E. Dionne, E. W. Holland, A. S. Lincourt, W. L. Morse of Sanford, and J. H. MacDonald of Kennebunk. The program for the day proved most interesting; our first visit being at the Beth Israel Hospital, with Dr. Jacob Fine, Professor of Surgery, Harvard Medical School, Surgeon-in-Chief of this hospital, in charge. It consisted of (a) Observing Surgery (Dr. A. Starr, Professor of Surgery, Tufts Medical School, conducted operations). (b) Tour of hospital with the executive staff. (c) Lunch in the coffee room at the hospital. The afternoon program was held at the Booth Memorial Hospital which was under the guidance of Dr. Henry S. Finkel, Assistant Professor of Obstetrics, Tufts Medical School and was as follows: Dr. Daniel C. Goldfarb, "Surgical Complications in Obstetrics;" Dr. Alfred Weller, "Care of the Newborn With Particular Reference to the Premature Infant;" Dr. Philip Marcus, "Anesthesia in Obstetrics, etc;" Dr. Louis Albert, "Sterility;" Dr. Samuel A. Robins, "Utero-tubography;" Brigadier Kimball conducted us on a tour of the hospital after which we had dinner at the hospital. In the evening, we attended a game of baseball at Braves Park and returned home with many interesting topics to be discussed on the way. The May 31st group designated to make this trip was as follows: Drs. R. S. Belmont, O. B. Head, M. K. Moulton, J. C. Myer, C. E. Richards, H. D. Ross and R. D. Vachon of Sanford. Dr. Jacob Fine, Professor of Surgery, Harvard Medical School, Surgeon-in-Chief, Beth Israel Hospital, was in charge of the program; it consisted of: (a) Observing Surgery, (b) Tour of the hospital conducted by the executive staff, (c) Lunch in the coffee room at the hospital. In the afternoon, this group went to the Booth Memorial Hospital where Dr. Daniel Goldfarb, Assisant Professor of Surgery, Tufts Medical School, was in charge of the program. The

following speakers were heard: Dr. Henry S. Finkel, "Office Gynecology;" Dr. Harold Rubin, "X-ray Pelvimetry;" Dr. Henry Rosen, "Papanicalau Smear in Obstetrics and Gynecology;" Dr. Sydney Ellis, "Obstetrical Emergencies;" Dr. Phillip Marcus, "Anesthesia." We had a delightful dinner at the hospital before which Brigadier Kimball conducted a tour of the hospital. In the evening this group attended the play "Mr. Roberts." A wonderful and instructive day was had by all. It is planned to make these trips a regular event on the staff's agenda.

At the June 13th dinner meeting we had as our guest speaker, Dr. Edward M. Hodgkins of Boston, Mass., Clinical Professor of Surgery, Tufts Medical School; Surgeon-in-Chief, Glover Hospital, Needham, Mass. His subject was: "The Diagnosis and Treatment of Inguinal Hernia." An election of officers was held and the following chosen: Dr. John Colby Myer, President; Dr. Carl E. Richards, Vice President; Dr. Stephen A. Cobb, Secretary-Treasurer; Dr. H. Danforth Ross, Dr. Edward W. Holland and Dr. Owen B. Head, Executive Committee; Dr. Stephen A. Cobb, Dr. Waldron L. Morse and Dr. Robert Vachon, Credential Committee; Dr. Bacon and Dr. Cobb, Program and Entertainment Committee; Nominating Committee for next year are: Dr. Ross, Dr. Holland, and Dr. Myer. Present were: W. E. Dionne, R. S. Belmont, M. Bacon, S. A. Cobb, O. B. Head, E. W. Holland, W. H. Kelly, A. S. Lincourt, W. L. Morse, J. C. Myer, J. H. MacDonald, M. H. Moulton, H. D. Ross, C. E. Richards and R. D. Vachon.

The July Staff Meeting will be held on Sunday, July 16, 1950, at the summer home of Dr. S. A. Cobb, at Oak Hill, Bauneg Beg. This will be a combined meeting and outing of the doctors of the staff, their wives, members of Board of Trustees and wives and invited guests.

S. A. Cobb, M. D.,
*Secretary of Staff.*

## HOSPITAL STAFF MEETINGS

Open to the Profession

| CITY | HOSPITAL | DATE |
|---|---|---|
| Augusta | Augusta General Hospital | 1st Wednesday |
| Bangor | Eastern Maine General | 2nd Tuesday |
| Bath | Bath Memorial Hospital | 1st Tuesday |
| Belfast | Waldo County | 2nd Friday |
| Biddeford | Webber Hospital | 2nd Thursday |
| Boothbay Harbor | St. Andrew's Hospital | 4th Tuesday |
| Caribou | Cary Memorial | 1st Wednesday |
| Damariscotta | Miles Memorial | 2nd Thursday |
| Farmington | Franklin County Memorial | 2nd Monday |
| Greenville | Charles Dean Hospital | 2nd Wednesday |
| Hartland | Scott Webb Memorial Hospital | 1st Wednesday |
| Lewiston | Central Maine General | 1st Monday |
| | St. Mary's General | 2nd Monday |
| Portland | Maine Eye and Ear Infirmary | 1st Tuesday |
| | Maine General | 2nd Friday |
| | Mercy | 3rd Thursday |
| Presque Isle | Presque Isle General | 1st and 3rd Tuesdays |
| Rockland | Knox County General | 1st Monday |
| Rumford | Rumford Community | 4th Wednesday |
| Sanford | Goodall Memorial | 2nd Monday |
| Waterville | Sisters | 2nd Tuesday |
| | Thayer | Every Thursday |

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

# TREASURER'S REPORT

*To the Officers and Members of the Maine Medical Association:*

The books of the Association and JOURNAL were closed and audited as of May 31, 1950, by Jordan and Jordan, Accountants and Auditors, Portland, who "found the same complete and correct in all details of record," and submitted the following statements "properly drawn up to show the true financial position of the Association, May 31, 1950, and the income and expense for the year under review."

FREDERICK R. CARTER, M. D.,
*Treasurer.*

## BALANCE SHEET, MAY 31, 1950

### ASSETS

| | | |
|---|---|---|
| Cash in Banks | | $26,328.79 |
| Accounts Receivable:— | | |
| Dues | $665.00 | |
| Advertising | 694.47 | |
| Sundry | 28.21 | |
| | | 1,387.68 |
| Securities | | 9,805.00 |
| Furnishings and Equipment | | 1,092.59 |
| Deferred Expenses:— | | |
| Annual Meeting | $ 17.91 | |
| Medical Advisory Committee | 1,000.00 | |
| | | 1,017.91 |
| Trust Fund Investments | | 3,100.59 |
| Canal National Bank — A. M. A. Assessment Fund | | 389.00 |
| Total Assets | | $43,121.56 |

### LIABILITIES

| | | |
|---|---|---|
| Accounts Payable | $1,012.61 | |
| Social Security and Withholding Taxes | 346.28 | |
| Deferred Income — Convention Exhibit Space | 1,030.00 | |
| Total Liabilities | | 2,388.89 |
| Assets in Excess of Liabilities | | $40,732.67 |

### CAPITAL AND FUNDS

| | | |
|---|---|---|
| Capital Account | $37,243.08 | |
| Trust Funds | 3,100.59 | |
| A. M. A. Assessment Fund | 389.00 | |
| Total Capital and Funds | | $40,732.67 |

## CAPITAL ACCOUNT

| | | |
|---|---|---|
| Balance—June 1, 1949 | | $43,494.62 |
| Add:— | | |
| Checks issued in prior periods not presented for payment | | 15.84 |
| | | $43,510.46 |
| Deduct:— | | |
| Social Security Taxes, January 1, 1937, to May 31, 1949, inclusive, assessed by Internal Revenue Department | $1,284.86 | |
| Penalty and Interest | 696.36 | |
| Attorney's Fees | 67.80 | |
| | $2,049.02 | |
| Expense in Excess of Income — One Year | 4,218.36 | |
| | | 6,267.38 |
| Balance—May 31, 1950 | | $37,243.08 |

## TRUST FUNDS AND INVESTMENTS

| | | |
|---|---|---|
| Prince A. Morrow Trust:— | | |
| 12 shares American Agricultural Chemical Co. (Cost) | $ 348.00 | |
| Canal National Bank — Savings No. 3905 | 1,550.44 | |
| | | $1,898.44 |
| Thayer Library Trust:— | | |
| Canal National Bank — Savings No. 3903 | | 1,202.15 |
| Total Trust Fund Investments | | $3,100.59 |
| Trust Funds:— | | |
| Prince A. Morrow Fund:— | | |
| Principal | $ 554.94 | |
| Income | 1,343.50 | |
| | | $1,898.44 |
| Thayer Library Fund:— | | |
| Principal | $1,154.20 | |
| Income | 47.95 | |
| | | 1,202.15 |
| Total Trust Funds | | $3,100.59 |

## STATEMENT OF REVENUE AND EXPENSE
### ONE YEAR ENDED MAY 31, 1950

### REVENUE

| | |
|---|---|
| Dues | $23,327.50 |
| Income from Investments | 441.05 |
| C. M. A. B. Advertising | 6,515.73 |
| Local Advertising | 838.93 |
| Subscriptions and Sales of JOURNALS | 24.00 |
| Exhibit Space Rentals—Convention | 1,445.00 |
| Total Revenue | $32,592.21 |

### EXPENSES

| | |
|---|---|
| Secretary and Treasurer's Office:— | |
| Salary — Secretary, Treasurer and Editor | $4,500.00 |
| Assistant Secretary | 3,000.00 |
| Office Assistance | 198.00 |
| President's Expenses | 350.00 |
| Social Security Taxes | 238.45 |
| Secretary and Treasurer's Expenses | 133.81 |
| Councilors' Expenses | 357.70 |
| Office Expenses:— | |
| Rent and Lights | 407.22 |
| Supplies and Stationery | 309.59 |
| Telephone | 284.76 |
| Postage and Mailing Expense | 315.44 |
| Auditing | 127.40 |
| Treasurer's Bond | 5.00 |
| Advertising | 30.00 |
| Subscriptions and Periodicals | 40.25 |
| Repairs | 2.50 |
| Miscellaneous | 49.00 |
| A. M. A. Meetings | 261.54 |

| | | |
|---|---|---|
| Medical Advisory and Special Committees | | 1,535.88 |
| Annual Meeting | | 2,230.38 |
| Clinical Sessions | | 320.49 |
| Delegates — New England Medical Societies | | 41.12 |
| New England Council | | 200.00 |
| Health Council of Maine | | 475.00 |
| 50-Year Medals | | 42.00 |
| Roster Reports and Bound JOURNALS | | 47.80 |
| Interest and Penalty — Social Security Late Filing | | 22.37 |
| | | $15,525.70 |
| Printing | $9,176.70 | |
| Plates | 664.93 | |
| | | 9,841.63 |
| Executive Secretary's Office | | 11,443.24 |
| Total Expenses | | $36,810.57 |
| Expense in Excess of Revenue — One Year | | $4,218.36 |

EXECUTIVE SECRETARY'S EXPENSES

| | | |
|---|---|---|
| Salary—Executive Secretary | | $7,000.00 |
| Stenographer | | 2,000.00 |
| Travel and Convention Expenses | | 653.93 |
| Committees | | 42.25 |
| National Education Campaign | | 20.97 |
| A. M. A. Meetings | | 76.07 |
| Prepaid Medical Plan | $503.00 | |
| Less:— | | |
| Received for Prepaid Medical Plan | 480.00 | |
| | | 23.00 |
| Office Expenses:— | | |
| Rent and Lights | | 429.87 |
| Supplies and Stationery | | 263.04 |
| Telephone | | 355.57 |
| Postage | | 125.00 |
| Repairs, Replacements and Equipment | | 239.64 |
| Subscriptions, Books and Periodicals | | 154.50 |
| Miscellaneous | | 59.40 |
| Total | | $11,443.24 |

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS — OPERATING

ONE YEAR ENDED MAY 31, 1950

| | | |
|---|---|---|
| Cash in Banks—June 1, 1949 | | $31,059.52 |

RECEIPTS

| | | |
|---|---|---|
| Received from Dues | $23,187.50 | |
| Income from Investments | 441.05 | |
| Exhibt Space Rentals | 1,810.00 | |
| Subscriptions and Sales of JOURNALS | 24.00 | |
| Advertising | 7,313.89 | |
| Social Security and Withholding Taxes | 1,564.33 | |
| Checks Cancelled | 15.84 | |
| Prepaid Medical Plan | 480.00 | |
| | | 34,836.61 |
| | | $65,896.13 |

DISBURSEMENTS

| | | |
|---|---|---|
| Secretary and Treasurer's Office:— | | |
| Salaries | $7,698.00 | |
| Traveling and Other Expenses | 841.51 | |
| Office Expenses | 1,571.16 | |
| A. M. A. Meetings | 2,031.34 | |
| Medical Advisory and Special Committees | 1,535.88 | |





HYFRECATOR DEALERS

George C. Frye Company, Portland

Maine Surgical Supply Co., Portland

| | | |
|---|---|---|
| Annual Meetings | 261.54 | |
| Clinical Sessions | 320.49 | |
| Delegates — New England Medical Societies | 41.12 | |
| New England Council | 200.00 | |
| Health Council of Maine | 475.00 | |
| 50-Year Medals | 42.00 | |
| Roster Reports and Bound JOURNALS | 47.80 | |
| Printing and Plates | 8,829.02 | |
| Social Security and Withholding Taxes | 2,962.71 | |
| Penalty and Interest—S. S. Taxes | 718.73 | |
| Attorney's Fees | 67.80 | |
| | $27,644.10 | |
| Executive Secretary's Office:— | | |
| Salaries | $9,000.00 | |
| Travel Expenses | 653.93 | |
| A. M. A. Meetings | 76.07 | |
| Office Expenses | 1,627.02 | |
| National Education Campaign | 20.97 | |
| Committees | 42.25 | |
| Prepaid Medical Plan | 503.00 | |
| | $11,923.24 | |
| | | 39,567.34 |
| | | $26,328.79 |

CASH IN BANKS—MAY 31, 1950

| | | |
|---|---|---|
| Canal National Bank — Checking Account | $17,774.19 | |
| Canal National Bank — Savings Account | 1,779.58 | |
| Maine Savings Bank | 3,158.50 | |
| Portland Savings Bank | 3,113.99 | |
| First National Granite Bank | 502.53 | |
| | | $26,328.79 |

SECURITIES
MAY 31, 1950

| | |
|---|---|
| BONDS | |
| $3,000 Portland Terminal Company, 1st Mortgage 5's, 1961 | $3,045.00 |
| $ 700 Prudence Bond Corporation, 1st Mortgage Coll., Series 6, 5½'s, 1936 (Defaulted) | 700.00 |
| $4,000 U. S. Savings Bonds, "G", due July 1, 1956 | 4,000.00 |
| $2,000 U. S. Savings Bonds, "G", due March 1, 1961 | 2,000.00 |
| STOCKS | |
| 10 Shares Mortbon Corp. of N. Y. | 60.00 |
| Total Securities | $9,805.00 |





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# The Journal

## of the

# Maine Medical Association

Volume Forty-One | Portland, Maine, August, 1950 | No. 8


## FOREWORD TO THE MAINE GENERAL HOSPITAL ISSUE

This issue of the JOURNAL represents the third collection of papers from this hospital in the current hospital series during the past two years. The Editorial Committee have collected fourteen papers and, as in the previous issue, these have been planned to represent the various activities of the hospital, in all departments, so that clinical, departmental and administrative problems have been discussed in these various articles. It has seemed worth while to have a discussion of the nursing educational problem with the particular view of showing what the Maine General Hospital Nursing School offers to a prospective student who may contemplate training for a career as a nurse on completing her high school education. Another administrative matter of great interest at all times is the changing order of hospital care, a discussion of which is presented here by the Director of the Maine General Hospital. The Department of Physio-Therapy has prepared an article dealing with the scope of its activities in the hospital. The majority of the papers this time have come from the Clinical Department and have been prepared by individual staff members. The following services are represented in this group: Medicine, Pediatrics, Obstetrics, Orthopedics, Urology, Neuro-Surgery, and General Surgery. A paper of timely interest at this period deals with a summary of the poliomyelitis cases in this hospital during the 1949 epidemic.

EDITORIAL COMMITTEE,
Maine General Hospital.

## CLINICAL

# DICUMAROL TREATMENT OF MYOCARDIAL INFARCTION, THREATENED OR ACTUAL*

RALF S. MARTIN, M. D., and EUGENE H. DRAKE, M. D.

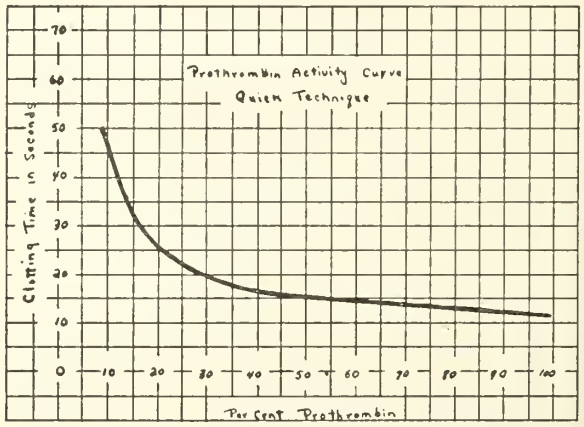
The availability of remedies which prevent or delay clotting of the blood has opened a vast new field for effective treatment in vascular disease. Heparin, which has been used for more than a decade, is expensive and must be given parenterally which means more rapid fluctuations of anticoagulant effect. Dicumarol is taken orally, is not expensive and is slow in action and in elimination from the body. It is not perhaps the ideal anticoagulant but with proper control of dosage it is a valuable therapeutic agent which statistics indicate has been responsible for the saving of many lives.

The successful use of these drugs in peripheral venous thrombosis allowed clinicians to consider their possible value in thrombosis of the coronary arteries. In 1947, medical journals published reports of this use of anticoagulants and the first of the patients comprising the series here reported were treated with these remedies. Report of the first 800 cases in the study made by the committee of the American Heart Association under the chairmanship of Dr. Irving Wright was made two years ago. The final report of the entire 1000 cases has subsequently appeared and anticoagulants are now widely used in the treatment of myocardial infarction. This study has clearly shown that anticoagulant therapy decreases the mortality rate of cardiac infarction from 23.5% in the control group to 16% in the treated cases. This is accomplished by prevention of thromboembolic complications which may be expected in 15% to 20% of patients with myocardial infarction. These complications are: 1) propagation of the original thrombus in the coronary artery with increase in size of the infarcted area of the myocardium; 2) new coronary thrombosis; 3) pulmonary or systemic embolism from a mural thrombus overlying the endocardial surface of the infarct which Blumer believes forms in ½ of the cases of coronary thrombosis, and 4) the prevention of peripheral venous thrombosis in the bed patient whose venous blood flow is further slowed by the presence of congestive heart failure.

The excellent study conducted in many metropolitan hospitals under the supervision of Dr. Wright's committee might seem to have settled this subject. But repetition of a clinical study is always of possible value. Experience with the use of anticoagulants leads to better control of patients and improvement in results may be expected. And the review of one's own material is always interesting and stimulating.

The patients included in this presentation were treated on the Medical Service of the Maine General Hospital or were private patients of one of the authors. No attempt was made to select the cases; all patients who received adequate anticoagulant treatment in the past three years are included. The figures of the Wright Committee's control series are used for comparison and further comparison is permitted between their treated cases and ours.

Dicumarol was given in initial dosage of 200 or 300 mg. after estimation of the prothrombin activity has been made. Thereafter 100 to 200 mg. of the drug was given each day until the prothrombin time approached the desired level. The prothrombin time was determined by a modification of the Quick method (one stage). At the beginning of this study results of the test were reported in percentage of normal prothrombin time and 30% to 50% was considered the desirable range. Early in 1949 our hospital laboratory began reporting the test in percentage of prothrombin concentration, the therapeutic zone being 30% to 10%. We have found that the use of a Prothrombin-Dicumarol chart has been helpful in providing a better understanding of the patient's status, a means of choosing the proper daily dose of

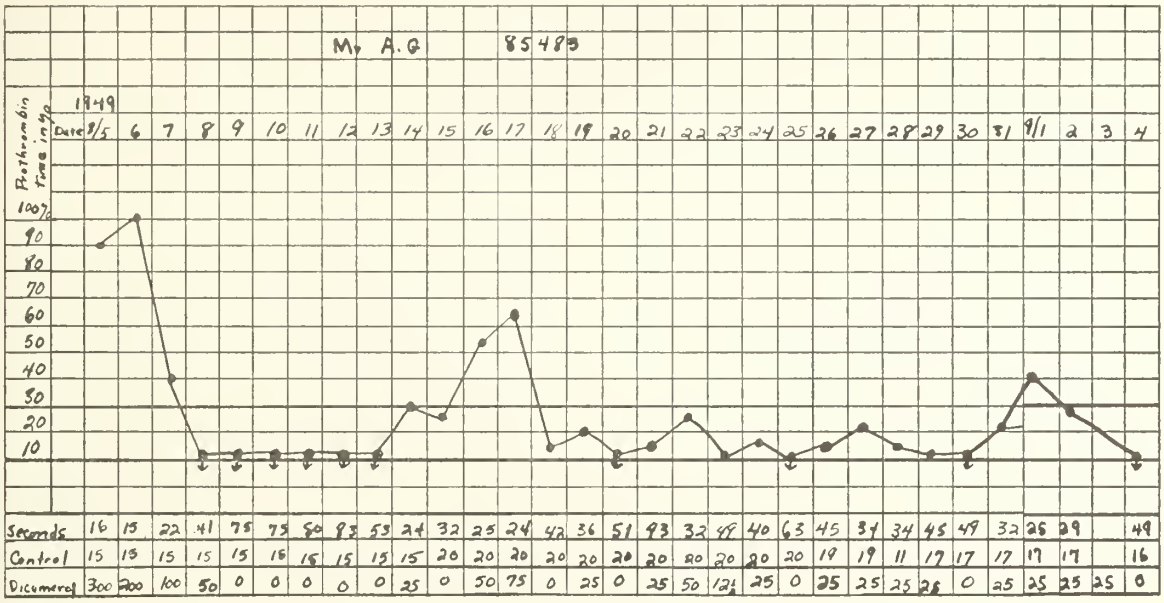



Graph from which the percentage of the patient's prothrombin concentration is obtained.

* Presented at the meeting of the Maine Heart Association, Poland Spring, June 20, 1950.

the drug, and an aid in maintaining more even control of the prothrombin level. In severe or delayed cases treatment was started with heparin 50 to 75 mg. intravenously every 4 hours or 200 mg. of Depot Heparin intramuscularly. Dicumarol was also given as soon as it was learned that the prothrombin time was not already decreased. Heparin was discontinued when the prothrombin concentration had reached the desired level.

Dicumarol has been avoided in the presence of




Example of chart used to record levels of prothrombin activity in a patient under treatment with dicumarol.

severe renal or hepatic disease, in blood dyscrasias with bleeding tendency, in ulcers or large granulating surfaces, in those who have been for a long period on an inadequate diet, and in persons with malignancy of the urinary or gastrointestinal tract. Hemorrhage is its greatest danger and major bleeding occurs in 6.8% of treated cases. However, there have been but 28 deaths as a result of anticoagulants in 12,000 reported cases, an incidence of 0.25%.

Dicumarol therapy may be undertaken with careful supervision in any hospital where reliable prothrombin determinations are available.

A total of 79 patients compose the group to be reported. Thirteen of the cases were women and 66 were men. Their ages ranged from 33 to 87 years. Dicumarol was not avoided in the elderly; six were 80 years of age or more. Four of the patients were in their thirties. Previous myocardial infarction had occurred in 16 or 20% of the group.

In 41 instances the infarct was localized in the anterior or apical region of the left ventricle and in 29 in the posterior portion. Four cases showed signs of both anterior and posterior infarction. There was one instance of subendocardial infarction. The auricle was additionally involved in one case. Infarction frequently included a portion of the septum: there were 7 cases of bundle branch block and 6 of intraventricular block. Transient a-v block was present in two patients and nodal rhythm in two. Several patients showed ventricular premature beats; in one person the premature beats were from multiple foci in the ventricle. Included in the series are six cases of threatened infarction or coronary insufficiency.

The effectiveness of control with dicumarol was classed as good in 57, fair in 9 who showed one or two brief rises of prothrombin time above the therapeutic level, and poor in 13. Heparin was used initially in 17 cases or 20.2%.

There was no instance of peripheral or pulmonary embolism, no venous thrombosis and no evidence of spread of the infarct or the development of new myocardial infarction in the group. Two patients had cerebral embolism and one pulmonary embolism before admission. Eleven of the 79 patients died, a mortality rate of 14% which may be compared with the 16% mortality in the Wright series.

Abdominal cramps and diarrhea were occasionally observed with the first large doses of dicumarol. It was possible to overcome this difficulty by the use of divided doses and the drug was never discontinued for this reason.

Bleeding was the important complication. The most common major bleeding was in the form of hematuria which was encountered in 7 of the cases,

in many of whom the prothrombin level was not low. Dicumarol was discontinued and in several instances vitamin K was given by vein. Hematuria may persist for a week in spite of these measures and enough blood may be lost to make transfusion advisable. Even if it is not severe, hemorrhage interrupts the treatment and is most disappointing to the physician who must stand by and watch the prothrombin level climb back toward normal. Resumption of anticoagulant therapy has been successfully undertaken after cessation of hematuria.

One patient who showed marked pulmonary edema and cyanosis on admission had hemoptysis under treatment. This was a man of 75 years whose critical condition led to the use of larger initial doses of dicumarol than were ordinarily used in the elderly. He received 300 mg. the first day and 200 mg. the second. The prothrombin concentration fell to less than 10% and remained at that level for a week in spite of the vitamin K. After a long illness he recovered without the use of further dicumarol.

Two patients bled from the gastrointestinal tract, one of them fatally. This was a man of 82 years who had no previous indigestion. Bleeding began on the 12th day and death occurred with sudden profuse hemorrhage when it appeared that he was responding to excellent management for GI bleeding. Autopsy showed an acute duodenal ulcer with hemorrhage from a large eroded artery in its base.

The remaining bleeding was from an amputation stump. The patient, age 85, entered the hospital for gangrene of the leg. One week after midthigh amputation he suffered myocardial infarction. The relatively mild bleeding took place 20 days after operation which was two weeks following the institution of treatment with dicumarol.

Autopsy was permitted in five of the eleven fatal cases. The patient with hemorrhage from a duodenal ulcer has been described. One patient died in the second week from ventricular rupture and cardiac tamponade. In two instances death was due to congestive failure.

The remaining fatal case which came to autopsy was a man of 69 who in the previous year had been treated for subacute bacterial endocarditis following tooth extraction. For 30 years he had suffered from auricular paroxysmal tachycardia and for 15 years cardiac enlargement had been present with a loud systolic murmur which was believed to be the result of a calcified mitral valve. Angina developed two and a half weeks after infarction. At three and a half weeks hematuria appeared and dicumarol was discontinued. Angina persisted in spite of bed rest. He died suddenly seven weeks after infarction, apparently from an abnormal cardiac rhythm. Autopsy showed calcification of the mitral and aortic valves and healing infarction as well as healed subacute bacterial endocarditis.

One of the seven cases treated with dicumarol for threatened coronary occlusion developed a subendocardial infarct and recovered. Infarction could not be proved in the other six cases. Four of these patients are on ambulatory treatment with dicumarol.

## Summary

A group of 79 patients is reported with results of treatment with anticoagulants for actual or threatened myocardial infarction. The mortality rate was 14%. No thromboembolic complications were observed. Bleeding occurred in 12.7% of the patients and in one instance was fatal.

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# IMPROVEMENT IN THE CARE OF THE NEWBORN, A RESUME

Alice A. S. Whittier, M. D., Chairman of the Maine Committee of the American Academy of Pediatrics' Committee On Fetus and Newborn

Maine is said to have the highest infant mortality of any state north of Virginia and east of Colorado. The rate for Maine in 1945 was 46 per 1000 live births. The infant mortality rate for the country as a whole has decreased from about 100 per 1000 live births in 1915 to 56 in 1935 and 38.3 in 1945, and since the rates for 1946 and 1947 are lower yet (33.8 and 32.2 respectively), it can be anticipated that the 1950 rate will show further improvement. The greater part of the improvement, however, has been in the 2-12 month period and although some progress has been made in the first month period, the mortality rate still remains high. In 1945, there were 38,000 deaths in the infants in the 2-12 month period, and 66,000 deaths in those less than one month. Of these 104,000 deaths in the first year, over 30,000 were in the first day of life.

In working to lower infant mortality, three periods need to be considered: the antenatal, the natal, and the postnatal. In viewing the antenatal period, we have the genetic and the environmental factors. Physicians should play a greater part in advice to women as to the desirability of having offspring. In order to do this, we must keep abreast of the advancement in medical knowledge. For instance, when fibrocystic disease of the pancreas was first recognized as a disease entity, it was not known that there was a strong familial tendency. It is now known to be a mendelian recessive condition. We are learning more about genetics and must make use of this information. We should warn fathers and mothers-to-be whose families show abnormal conditions which are inherited as dominant or recessive traits. Among such conditions are Friedreich's ataxia and progressive muscular dystrophy. In making environmental factors as favorable as possible, we should pay special attention to the embryonic period for this is the period of the formation of the fetus and when injuries cause malformations. The mother must be protected as much as possible against virus infection. In recent years, the frequent relationship between German measles in the mother and congenital cataracts, congenital heart disease, deafness, and idiocy in the infant has been seen. It is at this time that syphilis should be found if it exists and the proper treatment rendered. Tests to determine the Rh factor should be made and, if it is a second pregnancy and the mother is Rh negative and the father Rh positive, the possibility of an erythroblastosis infant must be kept foremost in mind. It is during this prenatal period that the mother should be told the value of breast feeding: no preparation required (so errors in the making of a formula are avoided, also possible contamination), more economical, ready at the proper temperature, the lowered incidence of respiratory infection in the breast fed, the psychologic effects, and the better involution of the uterus. As pregnancy progresses, the mother's nutrition needs to be guarded and proper rest and exercise assured.

The actual birth of the baby is a crucial event. Since the reduction in infant mortality has been partially attributed to the higher percentage of deliveries by qualified physicians and in accredited hospitals, we of the medical profession are challenged to continue this reduction. We must recognize the fact that in some hospitals there are too many Caesareans. It is as important to use operative interference when needed as it is to avoid it when not needed. It is poor obstetrics to allow a baby to be held back or to permit a mother to be overanesthetized pending the arrival of the doctor. Babies at times are born in a perilous condition traceable to oversedation.

Of the deaths among newborns, over 50% are among premature babies. Emphasis is now being placed on the care of prematures and much has been accomplished in the organization of Premature Centers. These are desirable because a premature needs constant nursing attention by those trained in this particular field. There are, however, many prematures born in areas which are at present too far away from such centers for transportation to them. Such improvement has been made in premature care that now many babies who were previously considered nonviable are now surviving and a new classification has been suggested by Ylppö as follows: 1) premature infant 2,500-1250 gm., 2) immature infant 1250-600 gm., 3) aborted fetus, less than 600 gm. There is a general tendency to consider an infant weighing less than 2500 gm. (5½ lbs.) a premature and for statistical purposes it is helpful to have this adopted by all hospitals.

The premature, even if of a viable age, is subject to many hazards. Due to the immaturity of the premature, he is less able to cope with these hazards than is the full term baby. Skin infection and conjunctivitis are more common in this group and skin infection may lead to the more serious condition of septicemia. The organs being immature, their functions are not fully developed. Prematures have weak cough and gag reflexes and poorly developed alveoli and other signs of underdevelopment of the respira-

tory function and consequently often suffer from atelectasis and aspiration pneumonia. The body temperature is unstable; the renal function is not fully developed leading to acid-base disturbances and edema. The digestive tract is poorly prepared to take care of fat; hemorrhage is more common. Anemia, rickets and other deficiency diseases are frequent complications. Any infection is more serious in the premature than in the full term and yet frequently is missed for these babies often do not show the characteristic signs present in an older infant. Retrolental fibroplasia, a most distressing condition even though not a fatal one, seems limited to this group.

Anoxia, which may be caused by improper oxygenation of the blood or may be due to abnormalities preventing oxygenated blood reaching the tissues, is a condition to which special attention must be given in consideration of all newborns. The anoxia may be present in utero due to such factors as abnormalities of the placenta or it may occur after birth. Infants are less able to endure anoxia, and at birth, the overcoming of this condition is an emergency. If the trouble is caused by improper oxygenation of the blood, clearing of the air way as promptly as possible is imperative. Because a much larger amount of fluid has been obtained by suction of the stomach of Caesarean infants than of the babies born through the birth canal, and because some of the respiratory difficulties seen in the Caesarean newborn are thought to be due to regurgitation and aspiration of this fluid, Sidney S. Gellis recommends that gastric suction be done routinely on babies delivered by Caesarean section. There are certain heart abnormalities which may not cause any trouble in the fetal circulation but loom up as inconsistent with life soon after extrauterine life begins. Again, we must remember oversedation as an all too frequent cause of anoxia. Conditions such as bronchial obstruction lead to atelectasis.

Since birth injuries account for more than 10,000 infant deaths a year, this factor needs particular attention in any attempt to lower the infant mortality rate. Here, prevention of intracranial injury due to trauma, anoxia, prematurity or other causes is of primary importance but treatment is supportive, keeping the infant sufficiently warm, administering oxygen, and avoiding too much handling. Opinion as to the advisability of repeated lumbar punctures is divided.

Some congenital abnormalities are beyond repair, but many, if recognized promptly, can be corrected by modern surgery. Abnormalities such as extreme dextroposition of the aorta still carry a very poor prognosis and those babies almost always die before they are six months old. Although the cardiac conditions for which we have operations are those operated upon after infancy, cardiac diagnosis and surgery are making rapid advances and soon other conditions may be conquered. One site of malformations in the newborn which responds to operative correction is the digestive tract. Here, the pathology must be detected promptly such as in atresia of the esophagus, of the duodenum, and in imperforate anus. Tracheo-esophageal fistula, now more promptly recognized than formerly, demands immediate action in order to avoid the serious complication of aspiration pneumonia. This abnormality should be suspected in the newborn if there is a lot of frothy mucus in the mouth. All feedings should be withheld pending diagnosis. If, however, the condition is not suspected and a feeding is given, and the baby's feeding, after a few swallows, returns through the mouth and nose, and the baby at the same time coughs, struggles, and becomes cyanotic, the diagnosis is practically made. Congenital pyloric stenosis presents symptoms at a variable period but usually vomiting begins within two or three weeks. Here, projectile vomiting, peristaltic waves, palpable tumor, constipation, and loss of weight should suggest the diagnosis, but these cases, unfortunately, are often missed and the baby is in poor condition before the source of the trouble is determined. Intestinal obstruction in the newborn is a challenge for prompt diagnosis. Persistent vomiting, with bile in the vomitus, presents the clue. Atresia of the bile ducts in one of its many forms presents a problem in the newborn, jaundice being one of the presenting symptoms. After the diagnosis has been made, exploratory laparotomy is indicated because 20% of the malformations are said to be correctable.

Throughout the newborn period, the physician needs to be on the alert for infection. In 1945, 8% of the deaths in the first month were due to respiratory and gastro-intestinal diseases. Among preventive measures, overcrowding in the nurseries should be avoided, and the formula room should be divided into two sections, one where the bottles which have been used in feeding the infants are received and washed, and the other where the formulas are prepared, sterilized, and stored. Whenever an infant shows possible signs of infection, he should be transferred to a suspect nursery. Impetigo and epidemic diarrhea of the newborn are two conditions dreaded in newborn nurseries. The former generally is a nuisance but usually not dangerous. The latter is of paramount danger. Quick action is necessary to avoid a real catastrophe.

The American Academy of Pediatrics has a Committee on Fetus and Newborn which has been a very active committee and under the leadership of Dr. Stewart H. Clifford of Boston as Chairman has prepared a manual, "Standards and Recommendations for Hospital Care of Newborn Infants — Full-term and Premature." This is an attempt to improve the

nurseries and their management and thereby help in lowering the morbidity and the mortality of the newborn. There is a sub-committee in every state. The Maine committee consists of Dr. Albert W. Fellows, Mr. Donald Rosenberger, Dr. Maurice Ross, Dr. Kenneth Sewall, Dr. Henry Thacher, and Dr. Alice Whittier. Every member of the committee stands ready to offer any assistance possible in the attempt to lower Maine's newborn morbidity and mortality.

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# ECTOPIC PREGNANCY

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Ectopic pregnancy can be defined as one in which a fertilized ovum has become embedded outside the uterine cavity. The common site for the ovum to embed is in the Fallopian Tube and as growth proceeds the tube ruptures or the products of conception are aborted into the abdominal cavity. In either case hemorrhage usually results and this brings the patient to the hospital for treatment or produces a decided change in the patient's health and she seeks medical assistance.

History tells us that successful surgery in the condition of ectopic gestation is only a little over 50 years old. In fact, Lawson Tait in 1883, was the first to successfully apply surgical methods for ruptured tubal pregnancy. Today, however, it is not an uncommon diagnosis in a general hospital. The treatment is surgical and the mortality of the past has practically disappeared, because the older teaching to watch and wait has been abandoned. In fact, with blood banks at hand even the most severely shocked patient due to hemorrhage can be improved before the operating room is ready. However, it seems timely to suggest that the auto-transfusion procedures at the time of operation should not be discarded. Certainly the patient's own blood taken from the peritoneal cavity and immediately given back to her is a safe and sane operation. In any event the auto-transfusion technique was a life-saving procedure in the days before the blood bank, and in many smaller hospitals can still be of immense value.

The theories on the etiology of ectopic pregnancy are to a large extent speculative and in this study will not be considered. Whether mechanical, developmental or inflammatory changes in the Fallopian tubes are of most importance would seem to be a matter of conjecture.

The clinical picture of tubal pregnancy is many times so typical that the diagnosis is easily made. However, in the unusual case the history and careful examination of the patient will prevent many diagnostic errors. Puncture of the cul-de-sac, hematocrit determinations, hormonal tests for pregnancy and blood studies must all be considered to and in the diagnosis.

In this study 55 consecutive cases admitted to the Maine General Hospital during the years 1942 to 1949, inclusive, will be analyzed.

## A STUDY OF 55 CONSECUTIVE CASES OF ECTOPIC PREGNANCY

By: Carl E. Dunham, M. D.
and
F. E. Whiskin, M. D.

The average number of ectopic pregnancies admitted each year was about 6. This figure includes both service and private patients.

### Analysis of Material

*Table I — Age*

| Age (Years) | Number of Patients | Per Cent |
|---|---|---|
| Under 20 | 2 | 3.64 |
| 20 to 25 | 10 | 18.20 |
| 25 to 30 | 15 | 27.30 |
| 30 to 35 | 16 | 29.12 |
| 35 to 40 | 8 | 14.56 |
| 40 or over | 2 | 3.64 |
| Not listed | 2 | 3.64 |

The age group in which ectopic pregnancy was seen most frequently was 25 to 35 years.

*Table II — Menses*

| | Number of Patients | Per Cent |
|---|---|---|
| No amenorrhea | 13 | 23.66 |
| Missed one menstrual period | 25 | 45.50 |
| Missed two menstrual periods | 10 | 18.20 |
| Missed more than two menstrual periods | 2 | 3.64 |
| Not stated | 5 | 9.10 |

Nearly one-half of cases studied had missed one period. Roughly 25% gave no history of amenorrhea. However, a large percentage of this group described some abnormality of the last period, such as scanty flow, a short period, etc.

*Table III — Vaginal Bleeding — duration of before admission*

| | Number of Patients | Per Cent |
|---|---|---|
| No spotting | 4 | 7.28 |
| Less than 2 weeks | 16 | 29.12 |
| 2 weeks to 1 month | 20 | 36.40 |
| More than 1 month | 8 | 14.56 |
| Not stated | 7 | 12.74 |

A history of spotting or vaginal bleeding was elicited in the majority of cases.

*Table IV — Pain*

| | Number of Cases | Per Cent |
|---|---|---|
| None | 0 | 0 |
| Crampy lower abdominal: | | |
| Not radiating | 26 | 47.32 |
| Radiating: | | |
| To thighs | 3 | 5.46 |
| To shoulder | 6 | 10.92 |
| To back | 5 | 9.10 |
| To rectum | 2 | 3.64 |
| To upper abdomen | 1 | 1.82 |
| Not stated | 12 | 21.84 |

Slightly less than 50% of the cases had a non-radiating type of lower abdominal pain. Of these, only about 25% felt the pain more in one lower quadrant than the other. Most of these cases showed a generalized crampy low abdominal pain localized to neither lower quadrant. None of the cases studied showed the typical sharp pain accompanied by syncope characterizing tubal rupture with hemorrhage. Radiating of a crampy, low abdominal pain to one or more of (1) shoulder, (2) back, (3) thighs, (4) rectum, is strongly suggestive of ectopic pregnancy.

*Table V — Weakness and feeling of faintness*

| | Number of Patients | Per Cent |
|---|---|---|
| Weakness: | | |
| None | 25 | 45.50 |
| Present | 11 | 20.02 |
| Not stated | 19 | 34.58 |
| Feeling of faintness: | | |
| None | 23 | 41.86 |
| Present | 13 | 23.66 |
| Not stated | 19 | 34.58 |

A history of weakness and feeling of faintness, or actual fainting, is not essential in the diagnosis of ectopic pregnancy. When present though, they should raise the index of suspicion considerably as they are characteristic subjective symptoms of the internal hemorrhage found in a large percentage of these cases.

*Table VI — Tenderness on abdominal palpation*

| | Number of Patients | Per Cent |
|---|---|---|
| None | 3 | 5.46 |
| Present | 37 | 67.34 |
| Not stated | 15 | 27.30 |

In the majority of cases, tenderness on abdominal palpation was present. It was localized to either one lower quadrant, or both, or to the whole abdomen.

*Table VII — Pelvic Examination*

Change in character of cervix uteri:

| | Number of Cases | Per Cent |
|---|---|---|
| None | 16 | 29.12 |
| Present | 29 | 52.78 |
| Not stated | 10 | 18.20 |
| Flowing from cervical os: | | |
| None | 19 | 34.58 |
| Present | 26 | 47.32 |
| Not stated | 10 | 18.20 |
| Mass: | | |
| Palpated | 34 | 61.88 |
| Not palpated | 8 | 14.56 |
| Not stated | 13 | 23.66 |

A careful, gentle, pelvic examination was an essential step in making the diagnosis of ectopic pregnancy. In at least 50% of cases the cervix showed one or more of the changes typical of pregnancy e.g. increase in size, bluish discoloration, softness of consistency, etc. In about 50% of cases flowing was observed. In over 50% of cases was a mass palpated either in one of the adnexal regions or in the cul-de-sac of Douglas. Pain on manipulation of the cervix was a common finding and in many cases produced extreme discomfort. However, this symptom was absent in a few cases.

*Table VIII — Type of operation performed*

| | Number of Patients | Per Cent |
|---|---|---|
| Salpingo-oophorectomy | 30 | 54.60 |
| Salpingectomy | 21 | 38.22 |
| Oophorectomy | 3 | 5.46 |
| Laparotomy with removal of clots | 1 | 1.82 |

Salpingo-oophorectomy on the side of the lesion was the procedure most commonly used in the surgical therapy of this condition.

*Table IX — Blood in abdomen at operation*

| | Number of Patients | Per Cent |
|---|---|---|
| None | 1 | 1.82 |
| Present | 47 | 85.54 |
| Not stated | 7 | 12.74 |

The majority of cases that came to operation showed free blood in the abdomen.

*Table X — Abdominal pathology found at operation*

| | Number of Patients | Per Cent |
|---|---|---|
| Tubal pregnancy: | | |
| Ruptured | 29 | 52.78 |
| Unruptured | 19 | 34.58 |
| Ovarian pregnancy | 1 | 1.82 |
| Not stated | 6 | 10.92 |

The ectopic pregnancy was situated most commonly in the Fallopian tube. At operation slightly more than one-half were ruptured. Ovarian pregnancies were rare.

*Table XI — Laboratory findings*

A. Hemoglobin on admission:

| | Number of Patients | Per Cent |
|---|---|---|
| 70% or above | 17 | 30.94 |
| 60 to 70% | 12 | 21.84 |
| 50 to 60% | 11 | 20.02 |
| 40 to 50% | 3 | 5.46 |
| Below 40% | 4 | 7.28 |
| Not stated | 8 | 14.56 |

An adequate hemoglobin was not against a diagnosis of ectopic pregnancy. However, a low hemoglobin strongly supports the diagnosis in the presence of the atypical clinical picture of this condition. A dropping of the hemoglobin percentage in successive determinations is a valuable finding. Hematocrit readings may be of equal value.

B. White Blood Cell Count on admission:

| | Number of Patients | Per Cent |
|---|---|---|
| Below 10,000 | 21 | 38.22 |
| 10,000 to 15,000 | 17 | 30.94 |
| 15,000 to 20,000 | 5 | 9.10 |
| 20,000 or above | 2 | 3.64 |
| Not stated | 10 | 18.20 |

Leukocytosis, if present, was usually moderate i.e. between 12,000 and 15,000 approximately.

*Table XII — Side of Pregnancy*

| | Number of Patients | Per Cent |
|---|---|---|
| Right | 28 | 50.96 |
| Left | 27 | 49.14 |

There was no predilection as regards the side on which the pregnancy was located.

*Table XIII — Length of hospital stay before taken to surgery*

| Number of Days | Number of Patients | Per Cent |
|---|---|---|
| 0 (same day) | 23 | 41.86 |
| 1 | 11 | 20.02 |
| 2 | 7 | 12.74 |
| 3 | 2 | 3.64 |
| 4 | 2 | 3.64 |
| 5 | 0 | 0 |
| 6 | 2 | 3.64 |
| 7 | 1 | 1.82 |
| More than 1 week | 7 | 12.74 |

A gratifying number of patients were taken to surgery the day of admission. However, roughly 13% were in the hospital more than *1 week* before being operated upon. This stresses the difficulty that is sometimes encountered in making the diagnosis and the need for the attending physician to be on the alert for extra-uterine pregnancy in female patients who may have only slight deviations in their normal period histories.

The average duration of stay in hospital following surgery was 14.2 days. Post-operative course in most cases was very smooth. Latter made possible by the administration of blood, sedation, etc. A high percentage of cases received auto-transfusions.

## Summary and Conclusions

1. 55 cases of ectopic pregnancy have been reviewed, all of whom came to surgery and all of whom recovered.
2. Ectopic pregnancy was most common in the age group between 25 and 35.
3. Roughly 25% of cases gave no history of amenorrhea. Nearly one-half of cases had missed one period. Careful history regarding the type of period patient had last will often give a clue. Often it is described as scanty, of short duration, a few days late, etc.
4. A history of spotting or vaginal bleeding is elicited in most cases.
5. All the cases studied had a crampy lower abdominal pain. Roughly 50% of these cases had no radiation of pain. Favorite sites of radiation were to (1) shoulder, (2) back, (3) thighs and (4) rectum.
6. None of the patients reported had the syndrome of sudden pain, syncope and shock often described in textbooks, but several gave signs of hemorrhage.

7. Roughly 1 in 5 patients gave a history of weakness and/or a feeling of faintness.

8. Tenderness on abdominal palpation was present in the majority of cases.

9. A careful, gentle pelvic examination is an essential step in making the diagnosis of ectopic pregnancy. Of cases reported, 50% showed cervical changes, 50% were flowing and 50% had a palpable mass.

10. Salpingo-oophorectomy on the side of the lesion was the procedure most often used in treating this condition, but oophorectomy was omitted whenever possible.

11. The majority of cases that come to operation show free blood in the abdomen.

12. The ectopic pregnancy is situated most commonly in some portion of the Fallopian tube. Slightly more than one-half were ruptured in this series. Ovarian pregnancies were rare, only one being reported in this series.

13. Finding an adequate hemoglobin should not turn one against a diagnosis of ectopic pregnancy. A low hemoglobin or a falling hematocrit tends to support the diagnosis, however.

14. Leukocytosis, if present, is usually moderate i.e. between 12,000 and 15,000.

15. As regards side of pregnancy, about 50% were on the right and 50% on the left in this series.

16. Patients were operated upon the day of admission in nearly one-half of the cases. However, 13% were in the hospital more than 1 week before going to surgery.

17. The average duration of stay in the hospital was 14.2 days.

18. Operation immediately the diagnosis was made, transfusions with whole blood, auto-transfusion in a goodly percentage of cases, and other supportive measures, have given a very gratifying result in this series of cases.

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# CYSTECTOMY AND URETERO-INTESTINAL ANASTOMOSIS FOR CANCER OF THE BLADDER

Donald F. Marshall, M. D.,* and Louis A. Asali, M. D.**

Cancer of the urinary bladder has always tried the judgement and skill of surgeons. The saying "Whatever you do is wrong," for cancer of the bladder, has seemed to be quite so. Now, however, more radical surgery is being carried out, due to more effective anesthesia, improved techniques, antibiotics, and the control of shock in prolonged surgical operations. With all these scientific advances, it is still imperative that very careful thought be given to each patient who is a candidate for removal of the bladder and transplanting the ureters to the sigmoid colon.

Graves[1] reviewed the literature thoroughly and found that Bardenheuer is credited with performing the first cystectomy 63 years ago in Stuttgart. Zuckerkandl collected 64 cases from the literature and estimated the general mortality to be 50%. Beer, in his book on tumors of the urinary bladder, gives the foregoing data and quoted Hugh Young that he believed the operation to be unjustifiable. The transplanting of the ureters was the main problem with the early surgeons and Beer found that Papin had reviewed 181 cases of cystectomy and had concluded that the mortality of implantation into the intestines was 59.2%. In Papin's collected series there were said to be 81 cases of transplantation to the bowel with 48 deaths.

With such results and opinions, it is not surprising that total cystectomy was generally felt to be of doubtful value, and a desperate, as well as a last resort measure.

In the past 10 years, renewed interest in this operation has been evidenced, and in this short period it has become one of the accepted surgical procedures for the treatment of bladder cancer. Cystectomy is being performed with increasing frequency and with increasingly encouraging results. Very recent advances make it desirable to include a careful dissection of the regional lymph nodes. An operation comparable to the Wertheim procedure for cancer of the uterus is

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thereby carried out. The removal of the bladder, prostate and seminal vesicles, the gland dissection and transplanting the ureters to the sigmoid colon is completed in one stage.

The indications for cystectomy have been nicely summarized by Graves[1] from whom we have quoted freely. In general, it is essential that the patient be in sufficiently good condition to withstand this extensive operation. Cure should be impossible or unlikely by any less drastic treatment. The tumor must be confined to the bladder, so far as it is possible to determine.

There are four indications for total removal of the urinary bladder: 1) Infiltrating carcinoma, always of indeterminate limits in the bladder wall, when it is so extensive that the visible or palpable growth within the bladder exceeds four centimeters at the most in its greatest diameter. 2) Multiple papillomatosis, whether benign or malignant, in which so much of the vesical mucosa is infested by tumor that attempts to destroy the neoplasm by radium or electrocoagulation will result in widespread fibrosis and impairment of bladder function. 3) Carcinoma of the trigone, especially infiltrating carcinoma bordering upon or occluding both of the ureteral orifices. 4) Cancer adjacent to or involving the outlet of the bladder. It is doubtful that tumors so situated can be removed completely by methods other than cystectomy. Local excision or radium in sufficient amount, in this region are likely to produce obstructive changes at the bladder neck.

A number of techniques have been devised for anastomosing the ureter to the sigmoid. The Coffey I technique has been employed most widely. In this procedure a trough is made along the tenia of the sigmoid for a distance of several centimeters in which the severed end of the ureter is placed. The trough is carried down to, but not through, the mucosa. At the distal end of the trough a stab wound is made directly into the lumen of the sigmoid. The distal end of the ureter is then inserted into the lumen of the bowel and anchored to the bowel wall with a suture. The edges of the trough are then sutured together over the lower end of the ureter, which thereby creates a valve action on the ureter and theoretically helps to prevent any reflux of the bowel content up into the kidney.

Many surgeons have simplified the above technique doing away with the trough entirely and just making a stab wound into the bowel, placing the end of the ureter into it and taking several sutures from the serosa of the bowel to the wall of the ureter.

Recently, Nesbit, at Ann Arbor, has advocated careful anastomosis of the mucosal end of the ureter to the mucosa of the sigmoid. The disadvantage of this is that there is no valve action as in the Coffey I operation. The same thing applied to the simplified technique. In view of this, Leadbetter[2] advocated a mucosa to mucosa anastomosis in addition to making a trough and thus producing a valve effect. This would appear to be the most logical type of anastomosis yet devised.

We have used uretero-intestinal anastomosis, without cystectomy, in numerous instances other than cancer of the bladder, such as vesico-vaginal fistulae caused by radiation for carcinoma of the cervix; extensive scarring of the posterior urethra following an auto accident; advanced tuberculosis of the bladder with autonephrectomy of one kidney. We are, however, not going to include these patients in this report. Dean also reports having done this in similar cases.

Very little is said in the literature about the technique of cystectomy itself. However, this part of the operation is time consuming and tedious. It is not easy surgery. The dissection of the bladder from the rectum or vagina, along with the pelvic lymph nodes must be done with meticulous care. In the male, the prostate and seminal vesicles are removed with the bladder. The pelvic floor is reperitonealized and the pelvis drained usually through the urethra.

## Case Reports

Case 1. (M. G. H. No. 70094) A man of 37 (the youngest patient in this group), had been under treatment with fulguration of the tumor for 5 years prior to the cystectomy. He was markedly anemic and he required 5 transfusions before surgery was done. Since then he has been able to carry out his regular work, he has gained weight and feels very well.

Case 2. (M. G. H. No. 65324) A man 47, who had also been under treatment for a bladder tumor for 5 years. He had had two prior operations with implantation of radon seeds. A cystectomy was done in July, 1947. He returned to his work in a dairy and has been in good health since the operation.

Case 3. (M. G. H. No. 67340) A male 53. Cystectomy was done in November, 1948. The patient continued to have bouts of acidosis after leaving the hospital and it was necessary to do a bilateral cutaneous ureterostomy in October, 1948. He gets along very well and is able to continue his work as a bank clerk.

Case 4. (M. G. H. No. 78428) A male 53. Cystectomy was done in November, 1948. This patient had blood in his urine for 6 years before he went to a doctor. Since surgery he has been very well and is able to carry on his work in an oil company. He has been in the hospital twice at long intervals in slight acidosis, but he has responded well to treatment.

Case 5. (M. H. No. 9388) A male 76. This is the oldest patient in the group. Cystectomy was done

in November, 1948, at the Mercy Hospital. He did very well following surgery, for 5 months, but went rapidly down hill and died in March, 1949. A postmortem examination was not granted to determine the cause of death.

Case 6. (M. G. H. No. 81285) A male aged 65, on whom a cystectomy was done in February, 1949. He did very well following surgery for about one year, and he, too, went rapidly down hill and died in the City Hospital. Postmortem examination could not be obtained to determine the cause of death.

Case 7. (M. G. H. No. 84055) A male of 69, on whom cystectomy was done in June, 1949. The patient developed a lower nephron nephrosis postoperatively. He was sent to Boston and placed on the artificial kidney. His blood urea nitrogen came down to 60 from 120. He was returned to Portland in not too good condition. His blood urea nitrogen gradually became more elevated and he expired about one month postoperatively. No postmortem examination could be obtained.

Case 8. (M. H. No. 43012) A male of 62. A cystectomy was done in June, 1949, at the Mercy Hospital. His postoperative course was excellent and he remains very well. There was no involvement of the pelvic lymph nodes.

Case 9. (M. H. No. 46712) A female of 55. Cystectomy was done at the Mercy Hospital in February, 1950, for cancer of the urethra. Her postoperative course was complicated by acute cholecystitis, which necessitated a cholecystectomy about ten days after the cystectomy had been done. She has complained of pain in her rectum but no recurrences have been noted. A hysterectomy had been done in 1917.

### Summary

A group of 9 patients is reported, in whom cystectomy and ureterosigmoidostomy were performed. Eight of the patients were males and had cancer of the bladder. There was one female patient in whom cystectomy was done for cancer of the urethra. The youngest patient was 37, the oldest 76. One patient required a bilateral cutaneous ureterostomy. There was one postoperative death due to lower nephron nephrosis. This compares very well with the series of 10 patients reported by Colby and Kerr[3] in which there were 3 postoperative deaths.

It is to be emphasized that careful judgement has to be exercised in selecting cases for total cystectomy, and ureterointestinal anastamosis with pelvic lymph node dissection. The indications for such formidable surgery are listed.

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# TRANSTHORACIC NEPHRECTOMY FOR METASTATIC OSTEOGENIC SARCOMA OF THE KIDNEY*

Donald F. Marshall, M. D.,** and Emerson H. Drake, M. D.***

The purpose of this paper is twofold: 1) to re-emphasize the simplicity and advantages of the transthoracic approach for nephrectomy in selected cases; and 2) to report an unusual case of osteogenic sarcoma that metastasized to the kidney.

### Case Report

H. St. G., a white man, aged 23, appeared at the Maine General Hospital on February 16, 1938, complaining of pain, stiffness and swelling of the right knee of 6 weeks' duration. Radiological examination revealed a bone-forming tumor of the lower end of the right femur (fig. 1). This was radiographically typical of an osteogenic sarcoma. A high thigh amputation was carried out. The diagnosis was confirmed on pathological examination (fig. 2, *A*). Radiological examination of the chest and pelvis at that time showed no evidence of metastases. The patient's postoperative course was uneventful, and he remained asymptomatic for the 10 years following.

In October, 1948, the patient consulted his family physician because of a dull, aching pain in the left side, of 6 months' duration. There were no urinary symptoms. On the basis of the findings on X-ray in the abdomen and chest, he was re-admitted to the Maine General Hospital on October 24, 1948. Aside from his previous amputation, his past, family and social histories were irrelevant.

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Physical examination demonstrated a sense of resistance in the left upper quadrant, but no definite mass was outlined, and neither kidney was palpable. The stump of the right femur was healthy and in good condition. The remainder of the physical examination was negative. X-ray studies showed a 4 cm. calcified nodule situated laterally in the left lung (fig. 3, *A*). A plain X-ray of the abdomen revealed a 9 cm. nodule of similar density in the region of the upper pole of the left kdney. Intravenous urograms showed a normal appearing right kidney, but no excretion from the left (fig. 3, *B*). The impression was that of metastatic involvement by osteogenic sarcoma of the left kidney and the left lung. Laboratory studies revealed a normal red blood count and hemoglobin value. The white blood count and differential were normal; blood urea nitrogen was 15 mg. per cent, and bleeding and clotting times were normal. Urinalysis showed a *p*H of 5.5; sugar 0; albumin faint trace; microscopically there were numerous red blood cells, no bacteria. A preoperative diagnosis of metastatic osteogenic sarcoma of the left kidney and left lung was made.

On November 1, 1948, an operation was performed as follows: With the patient lying on his right side, an incision was made through the skin and muscles overlying the left tenth rib, and the rib resected subperiosteally from its angle to the costal cartilage. The chest cavity was entered, and a semicircular incision made through the diaphragm over the underlying kidney, which was displaced upward and outward by a tumor mass arising from its upper pole. After removing the spleen for greater exposure, the kidney pedicle was isolated with moderate difficulty, and the vessels ligated and divided individually. Following removal of the kidney, the diaphragm was



Fig. 1

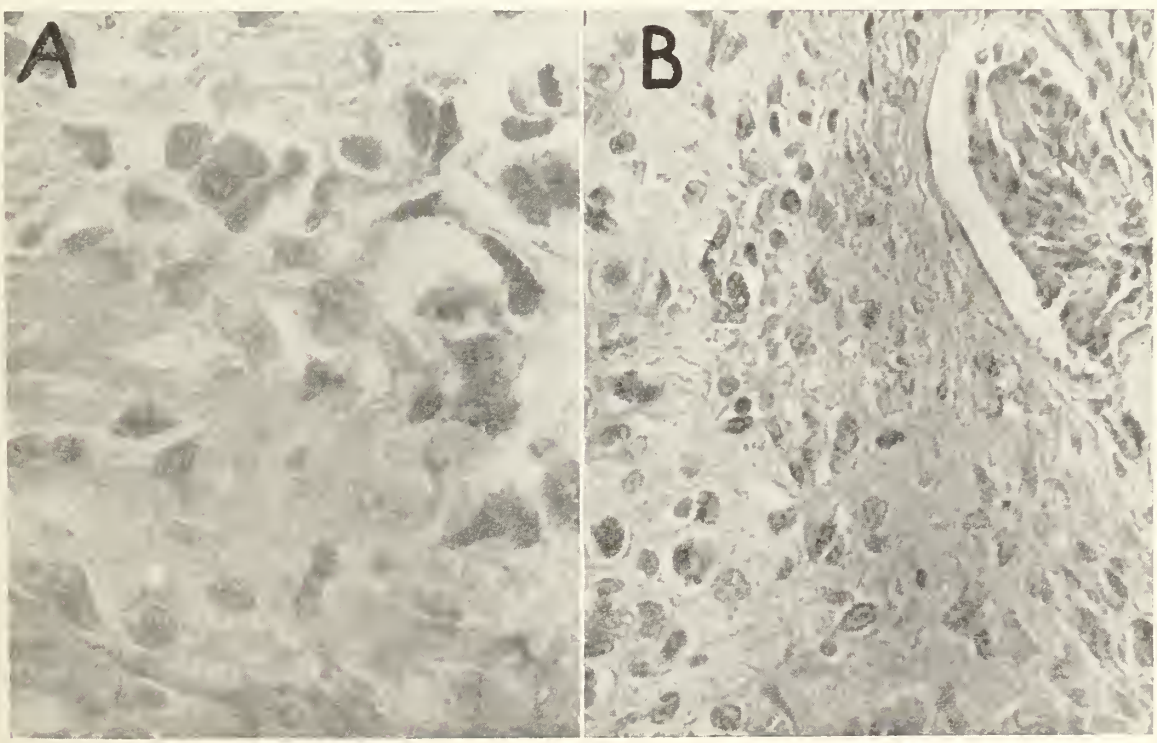



Fig. 2

closed with interrupted sutures of silk. A small posterior segment of the ninth rib was resected and the lingular portion of the left upper lobe was drawn into the wound. The tumor mass was amputated, the lung being whipped over with a running catgut suture. Three other small calcified pulmonary foci were palpated and removed individually, closing each defect with a small mattress suture. The chest wall was closed in layers with interrupted silk, with temporary intercostal drainage.

The postoperative course was entirely uneventful, and the patient was discharged home on his 14th postoperative day. Pathological examination (fig. 2, *B*) confirmed the diagnosis of osteogenic sarcoma with one large renal and one large pulmonary metastasis, as well as several smaller metastatic pulmonary implants.

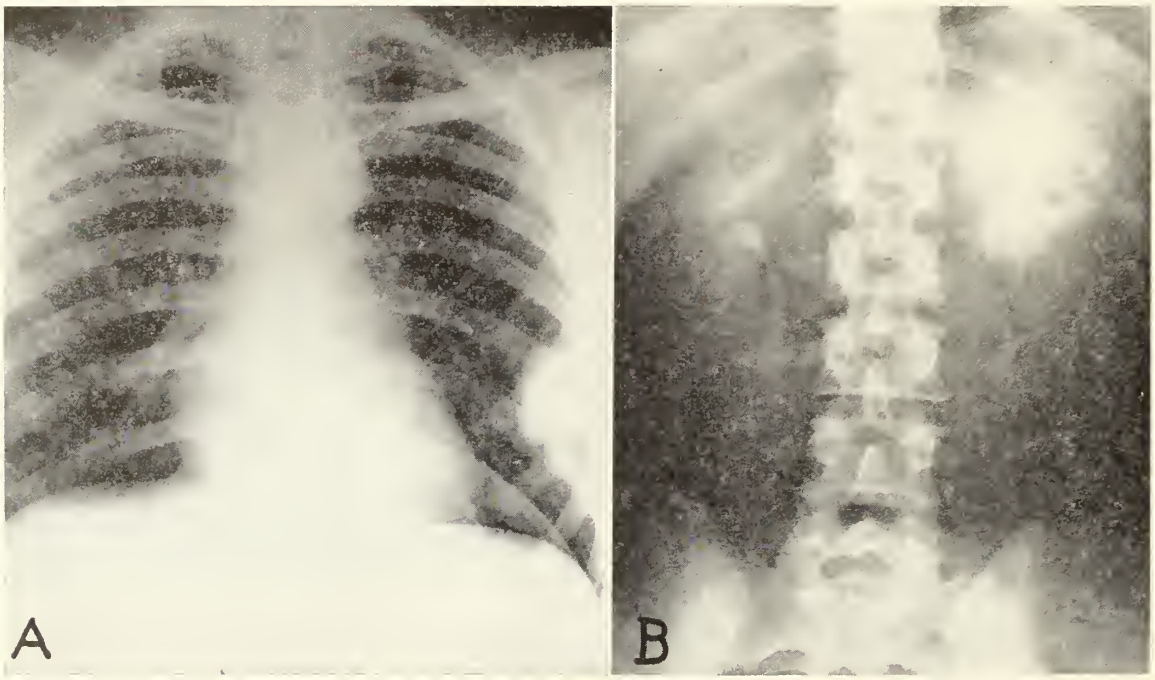



Fig. 3

## Discussion

This patient was an ideal candidate for a transthoracic nephrectomy because the tumor was large and occupied the upper pole of the kidney. It was high under the costal margin, which would have made removal difficult by either the customary flank or the transperitoneal approach. In addition, the transthoracic approach made possible the examination of the left lung at operation.

Transthoracic nephrectomy was born of necessity in World War II. Six such operations were performed in 1944, during the Italian campaign, at the 8th Evacuation Hospital, affiliated with the University of Virginia. Details of this operation for traumatic thoraco-abdominal injuries have been described by one of us.[1] At that time it was felt that this operation would be feasible only on the left kidney because of the presence of the liver on the right side. However, since that time this operation has been employed independently by Dr. Richard Chute[2] and Dr. Wyland Leadbetter[3] for the resection of tumors of the right kidney as well. They have observed that in cases of large renal tumors the liver is displaced enough laterally to allow for the transthoracic approach.

This approach is very convenient for the surgeon because of the excellent exposure of the renal vessels. In addition to this technique demonstrated at the 8th Evacuation Hospital in cases of traumatic thoraco-abdominal wounds, its advantages in nontraumatic selected cases have been demonstrated in a film by Dr. Richard Chute at the annual meeting of the American Urological Association in Boston, in May, 1948. It is imperative that if this approach is used, an anesthetist well trained in endotracheal technique be available, and a thoracic surgeon makes a welcome member of the team. The unusually smooth convalescence of these patients is remarkable.

With the moderately encouraging results reported by Alexander and Haight,[4] from the resection of isolated pulmonary metastases of primary renal

tumors, an occasional patient might lend himself to this means of resecting a solitary pulmonary nodule at the time of resection of the primary tumor, rather than at a later stage.

The recurrence of osteogenic sarcoma 10 years after resection of the primary lesion is unusually rare. The Army Institute of Pathology has a collection of approximately 150 osteogenic sarcomas, and according to Brig. Gen. R. O. Dart, USA, Director[5] "a considerable number" of these have developed metastases to the kidney. There is no record at the Army Institute of Pathology of primary osteogenic sarcoma arising in the kidney.

Hamer and Wishard[6] reported in July, 1948, a case of primary osteogenic sarcoma involving the right kidney. These writers were able to find only two other cases of osteogenic sarcoma of the kidney.[7, 8]

Blades and Effler[9] reported, in February, 1948, a review of the surgical treatment of the solitary lung metastasis.

The patient reported in this paper is being followed closely for evidence of recurrence. It seems highly unlikely that the resection of the pulmonary metastases in this particular individual will greatly prolong his life, but the extreme simplicity of this procedure with this approach led us to attempt to resect the gross tumors for whatever palliation possible.

### Addendum

The patient has been asymptomatic for 9 months. On August 22, 1949, he complained of swelling, with slight discomfort, in his left testicle. Examination showed an enlarged, firm left testicle, with one small area of stony hardness present. There was also a slight amount of fluid present, and some thickening of the spermatic cord.

A left orchidectomy was done on September 9, 1949. Pathological examination showed metastatic osteogenic sarcoma of the left testicle.

Metastatic tumors to the testicle, particularly of this type, are extremely rare.

The patient was examined again in July, 1950. He is losing weight, and it was found that he had extensive recurrences in both his abdomen and lungs, by X-ray.

### Summary

A diagnosis of metastatic osteogenic sarcoma of the kidney was made in a patient whose metastases occurred 10 years after the removal of the primary lesion in the right femur.

A metastatic nodule was also identified preoperatively in the lingular portion of the left lung.

The transthoracic approach was used to remove the kidney and a portion of the left lung.

Transthoracic nephrectomy has proved to be a logical and simplified approach in selected cases.

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# BRONCHIOGENIC CARCINOMA*

## Present Concepts As To Diagnosis And Treatment

Emerson H. Drake, M. D.**

Carcinoma of the lung is a disease which is increasing in importance. It is predominantly a disease of men between the ages of 40 and 70 years. Each succeeding year produces an increase in the number of diagnosed cases. Not only is the general public living to an older age, so that they have an increased likelihood of developing a carcinoma, but there is apparently an actual increase in the incidence of carcinoma of the lung out of proportion to other forms of malignancy. The exact cause of the relative increase in bronchiogenic carcinoma among carcinomas as a whole has not yet been fully explained. However, a recent article by Wynder and Graham[1] points out that of persons having carcinoma of the lung a far higher percentage are heavy smokers than is found in the population at large. They make the suggestion that the heavy use of tobacco appears to play a definite etiological role in the development of bronchiogenic carcinoma, particularly the epidermoid type. With the enormous tobacco consumption found in the

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world today, we have a possible cause for the increase of this particular type of tumor. This over-all increase in the incidence of the disease makes its early recognition and prompt treatment of extreme importance.

## Diagnosis

As with carcinoma in other parts of the body, the best results of treatment are entirely dependent upon the early recognition of the disease and the institution of therapy before metastases can take place. The success of surgical extirpation, which is the only curative form of treatment for primary bronchiogenic carcinoma, depends upon the removal of the entire tumor before it has extended beyond the bounds which can be technically removed. In order to increase the number of patients who are suitable for surgical therapy, earlier diagnosis must be made. The use of the routine X-ray chest surveys in the attempt to diagnose early pulmonary tuberculosis has led to the discovery of numerous shadows lying within the lung field. Many of these are entirely asymptomatic, yet they demand investigation. Some of the best results surgically in the treatment of bronchiogenic carcinoma have resulted from the surgical extirpation of these early lesions. An asymptomatic carcinoma of the lung may first make its presence known by the development of a surrounding area of pneumonitis. This may be diagnosed by X-ray as an area of pneumonia and treated accordingly, with good results. The failure to obtain a check-up X-ray after the disappearance of the acute symptoms leads to a delay in the recognition of a persistent shadow, whose investigation should lead to a diagnosis of early carcinoma, and allow treatment in an earlier stage. The insistence upon surgical exploration of these lesions in spite of the fact that they may remain asymptomatic following the acute episode has led to the discovery of small localized carcinomas which are technically resectable. It is the discovery of lesions in the stage before diagnostic symptoms have appeared which gives the best chance of obtaining a permanent cure with surgical therapy. The characteristic signs and symptoms of carcinoma of the lung such as cough, wheeze, hemoptysis, weight loss, clubbing of the fingers, pain in the chest, pain in the shoulder, and gradual loss of strength, are well known. The first three symptoms may appear in the early stages of the disease, whereas the others often appear only after the carcinoma has spread beyond the confines of one lung, so as to make the chances of surgical extirpation less good. Nevertheless, patients complaining of these symptoms deserve a careful study. This should include bronchioscopic examination with either biopsy or aspiration of secretions for smears to identify tumor cells, the routine use of posterior-anterior and lateral X-ray films to localize lesions lying in the periphery of the lung field, the biopsy of suspicious cervical or axillary lymph nodes, and the study of expectorated sputum for tumor cells. The vast majority of all primary carcinomas of the lung are visible either by X-ray or by bronchoscopy. All patients whose symptoms are suspicious of carcinoma of the lung should be given the benefit of these studies. In about 60% of the cases a positive biopsy of the primary tumor can be made at the time of bronchoscopy. Over the past eight years the increased use of the Papanicolau smear technique[2] of examination for tumor cells has been adapted to the study of secretions from the pulmonary tree. As time goes on there is increasing accuracy in the recognition of tumor cells in the sputum coughed up by a patient suffering from a lung tumor, and in the smears made from the bronchus at the time of bronchoscopy. The finding of a so-called positive smear is a helpful confirmatory bit of evidence to add to the X-ray and bronchoscopic observations, tending to confirm the diagnosis.

## Operability

Unfortunately not all patients thought to be suffering from carcinoma of the lung are candidates for surgical exploration. There are two general contraindications to this procedure. One is in a group of patients which in spite of showing no discrete evidence of extension of the tumor beyond the confines of the lung, does show evidence of marked emaciation, weight loss, and general poor physical condition such as to make it obvious that they would not withstand a major surgical procedure. This does not mean that an emaciated patient should be denied the only chance of cure because of a risk of a major operation, but many of these patients are in terminal condition when first seen. Unfortunately a fairly high number of persons suffering from primary carcinoma of the lung reach this stage, and although the diagnosis is definitely established, they can never be improved to the point where they will be able to go through a major operative procedure. Other patients are inoperable in that they show evidence of extension of the carcinoma to well beyond the limits which can be resected at time of operation. The findings of tumor in a cervical lymph node, or the evidence of rib or spine involvement by X-ray would be presumptive evidence of this sort. The finding of a Horner's syndrome indicates involvement of the dorsal sympathetic chain, and therefore extension of the tumor beyond the confines of the lung. Pain down the arm is likewise an unfavorable symptom as it usually indicates the involvement of the nerves of the brachial plexus. The presence of fluid in the chest cavity is also an unfavorable finding. It usually is indicative of direct extension of the tumor from the lung into the pleural space, and the

finding of tumor cells in this chest fluid is a definite contraindication to exploration, as tumor implants quickly spread throughout the pleural space and it would be technically impossible to remove the entire pleura. The finding of a paralyzed diaphragm on fluoroscopy or a paralyzed vocal cord at bronchoscopy is suggestive of the invasion of the phrenic or recurrent laryngeal nerves by tumor, and therefore would be presumptive evidence of inoperability. Likewise, the finding at bronchoscopy of a widening and fixation of the bifurcation of the trachea, or of direct tumor involvement of the lower trachea would seem to indicate that the tumor had extended beyond the area which could be removed surgically. The findings at X-ray and bronchoscopy are important in reaching the decision as to exploration.

### X-ray

The X-ray and fluoroscopic examination of the patient not only localizes the lesion in the chest, but gives evidence pointing to the probable primary or metastatic nature of a lung tumor. It also indicates as to the probable surgical resectibility of the lesion. A small primary carcinoma may obstruct a minor bronchial division, leading to a wedge-shaped peripheral area of collapse. The presence of this can often only be recognized by the use of fluoroscopic examination, or with lateral and oblique X-ray views. The recognition of free pleural fluid or of a paralyzed diaphragm on fluoroscopy is evidence suggestive of inoperability. Occasionally, in massive mediastinal involvement, the esophagus is constricted or displaced, and the use of a barium swallow will establish the inoperability of the lesion.

### Bronchoscopy

The bronchoscopist who is trained in the observation of lung tumors is in a position to rule on the therapy of a bronchiogenic carcinoma. He not only assists in the establishment of a tissue diagnosis, but is able to detect the paralysis of a vocal cord, the fixation of a main bronchus involved in tumor, and to rule on the margin of free bronchus present, being thus able to ascertain whether or not a resection could be performed. By bearing in mind not only the importance of the establishment of a diagnosis, but the location and extent of the tumor, a surgical attack can be planned and a number of hopeless patients can be spared the discomfort of a fruitless thoracic exploration.

### Type of Operation

Surgical exploration is advised on all patients irrespective of age who can be expected to have any chance of going through a major operative procedure, and who have no definite evidence of inoperability. Of the group on which exploration is advised, a certain proportion will show evidence at operation of extension beyond the confines of the lung, so as to make the chances of cure very slight. There may be obvious massive metastases to the hilar lymph nodes, or there may be direct extension into the chest wall, the mediastinal structures, or the diaphragm. In individuals suffering from a chronic cough and production of bloody sputum, a considerable degree of palliation may be derived from resection, in spite of the fact that all the tumor is obviously not removed at the operation. There is also some increase in life expectancy following such a procedure. Therefore, if cough and sputum are major symptoms, and if it appears that the tumor can be removed with a reasonable risk, this should be carried out for the sake of making the patient's remaining months of life more comfortable.

The first successful resection and cure of a carcinoma of the lung was performed in 1933 by Dr. Evarts Graham.[3] This resection was a total pneumonectomy, and since that time pneumonectomy has been the type of resection of choice in carcinoma of the lung. It is obvious that by total pneumonectomy a higher percentage of the hilar lymph nodes can be removed en block, and that in a tumor which has extension to the lymphatics of the hilum there is a far better chance of extirpation of the microscopic and gross metastases than is possible by a lesser procedure. The occurrence of primary bronchiogenic carcinoma in the main bronchi makes total pneumonectomy a necessity, inasmuch as this procedure alone will give a bronchial cuff adequate to prevent the recurrence of carcinoma in the divided stump. It has been recently pointed out that total pneumonectomy in the older age group may on occasion lead to severe disability if the remaining lung is diseased, and it has been suggested that with some carcinomas of the lung arising in the periphery, an adequate bronchial margin can be obtained by lobectomy. This procedure on occasion is used in preference to total pneumonectomy. The statistics of Churchill,[4] tend to show that in selected cases there is no higher local recurrence rate following lobectomy than is found following pneumonectomy in the group as a whole. These selected cases represent a relatively small proportion of the total carcinomas of the lung, and total pneumonectomy still remains the operation of choice in most cases.

Of those patients explored, a fairly high proportion will be found to be incurable by resection, and to have extension too extensive to allow palliative resection. In these persons the operation must be abandoned and resort made to some other form of therapy.

### Alternatives To Surgery

There is a definite increase in the over-all life expectancy of inoperable carcinoma of the lung if

treated by X-ray.[5] The use of the high voltage X-ray machines allows the delivery of larger quantity of X-rays to the deep tissues of the body without the usual accompaniment of skin reaction, and therefore gives a more effective tool for the treatment of inoperable carcinoma of the lung. Unfortunately only a relatively small proportion of persons suffering from carcinoma of the lung receive a very appreciable prolongation of life as a result of deep X-ray treatment, but they may receive considerable relief of the accompanying pain. Another alternative which has been suggested is the use of nitrogen mustard. A recent article by Lynch[6] et al., describes the use of nitrogen mustard in the treatment of sixty patients suffering from bronchiogenic carcinoma, as an alternative to X-ray therapy. Their conclusions are that nitrogen mustard therapy does not usually prolong life, but may offer considerable palliation to persons suffering from bronchiogenic carcinoma. It would seem reasonable to advise nitrogen mustard therapy particularly in the undifferentiated type of tumor, inasmuch as this group appears to respond best to this form of therapy. It should be pointed out that true cures do not occur with either X-ray or nitrogen mustard therapy, and that in the surgical group alone is there any instance of complete cure.

## Discussion

A careful review has been made of the case histories of all patients with a diagnosis of bronchiogenic carcinoma studied at the Maine General Hospital during the twenty-one month period from October 1, 1948, to July 1, 1950. This period of time was chosen because during this interval the author has taken a personal interest at this hospital in the diagnosis and treatment of this disease. All cases are included on whom a pathological diagnosis of bronchiogenic carcoinoma was made, or on whom the X-ray and bronchoscopic findings would seem to establish the diagnosis with question. Unproven cases have been eliminated. The total group consists of 35 patients, out of a total of 4,893 hospital admissions (Table I). It is

TABLE I

Surgical Therapy in 35 Cases of Bronchiogenic Carcinoma

| | |
|---|---|
| No Exploration Advised | 23 |
| Refused Exploration | 1 |
| Exploration Performed | 11 |
| Found Inoperable at Exploration | 5 |
| Died at Exploration | 1 |
| Resection (pneumonectomy) | 5 |
| Total | 35 |

realized that this group is too small to be statistically significant, but does seem to emphasize the frequency with which the disease is encountered in the general medical population. Diagnostic studies led to the classification of "inoperable" in twenty-three cases (Table II). A number of these were in a terminal

TABLE II

Reason Exploration Not Advised

| | |
|---|---|
| Mediastinal Involvement on Bronchoscopy | 5 |
| Tracheal Involvement on Bronchoscopy | 1 |
| Esophageal Involvement by X-ray | 2 |
| Pleural Involvement | 2 |
| Cervical Node Involvement on Biopsy | 3 |
| Brain Metastasis | 3 |
| Spinal Metastasis | 1 |
| Terminal Status on Admission | 4 |
| Refused Study for Operability | 2 |
| Total | 23 |

state at the time of admission to the hospital, and a definitive diagnosis was made only at postmortem examination. Exploration was recommended in twelve cases. One patient refused the recommendation, and left the hospital against advice. Eleven explorations were done, with the successful performance of five pneumonectomies. Five patients showed evidence of extension of the tumor into the diaphragm, chest wall, or mediastinum, and at thoracotomy were closed without resection. One patient died of cardiac standstill on the operating table during the explorative procedure, no attempt at resection being made. There were no operative deaths in the resected group, and all five patients are now living and well without evidence of tumor recurrence.

Pathological examination of the removed lungs showed negative hilar lymph nodes in all five patients on whom pneumonectomies were performed. The tumor in each of these cases was classified as Epidermoid Carcinoma grade I.

## Summary

Carcinoma of the lung is a disease which can be cured if diagnosis is made early and surgical extirpation carried out promptly. Aids towards early diagnosis include the use of the routine chest survey technique, the investigation of suspicious lung shadows which fail to clear by X-ray, particularly in older males, and the early X-ray and bronchoscopic study of any individual suffering from the classical symptoms of carcinoma of the lung. The operative mortality is not excessive and surgical removal represents the only form of therapy which has any curative value. Palliation can often be achieved by the use of X-ray or nitrogen mustard therapy. A review is made of thirty-five patients suffering from bronchiogenic carcinoma at the Maine General Hospital over a twenty-one month period of time. In this group five pneumonectomies have been performed without operative mortality.

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# RUPTURE OF THE MUSCULOTENDINOUS CUFF OF THE SHOULDER

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Orthopedic lesions of the shoulder region have the reputation of being more difficult to accurately diagnose and treat than are those of any other region of the body except the low-back. Reliance on fundamental observations and an accurate correlation of facts will generally produce not only an accurate diagnosis but also a definite guide to the proper treatment. A basic knowledge of the normal, an accurate and detailed history, a careful physical examination, radiological examination, laboratory tests, a continuing observation of the patient's reaction to treatment, and finally, if necessary, an exploratory operation will each contribute facts, that together will form the correct diagnosis.

Tears of the musculotendinous cuff form a frequently disabling and often unrecognized group of shoulder lesions. This musculotendinous cuff is formed by the blended tendons of the subscapularis, supraspinatus, infraspinatus, and teres minor muscles and inserts on the lesser and greater humeral tuberosities. The action of these intrinsic muscles is mostly that of stabilization and maintenance of gleno-humeral apposition; they synchronize with and compliment the extrinsic muscles throughout the full range of shoulder motion.

The tensile strength of healthy cuff tendons varies from 750 to 1000 pounds per square inch. It is evident then that rupture of a healthy tendon can be produced only by forceful or violent trauma. The great majority of shoulder cuff tears occur through degenerated tendon fibers and are the result of mild or even unrecognized trauma. Thus the average age of patients suffering this lesion is about 50, though it may occur as early as 15; males outnumber females in the ratio of about 2 to 1; and heavy labor predisposes no more frequently than does light or sedentary work.

In establishing the diagnosis of a cuff tear there are certain signs that are of value. Two of them are always present. The first is the absence of restriction of passive motion. The shoulder containing a torn cuff may appear stiff when moved actively against gravity. However, the presence of unrestricted gleno-humeral motion is demonstrable without undue discomfort if the patient is asked to bend over and try to touch his toes. The second constant sign is the presence of selective myopathies. Within two weeks of rupture, atrophy is generally visible and atony palpable in the spinati muscle bellies. The deltoid, if abnormal at all, is hypertrophied in contradistinction to the deltoid atrophy seen with other painful shoulders.

Dependable signs which are found frequently but not constantly in the presence of cuff tears are: first, the absence of a calcium deposit. It is rare for both tear and calcium to be found in the same cuff. Second, palpation of the rupture. A complete thickness tear is usually palpable as a hiatus in the tendon cuff as the head of the humerus is rotated beneath a relaxed deltoid. Third, crepitus. The presence of a characteristic soft tissue crepitus occurring when the retracted tendon stump is rolled between the humeral head and the palpating finger is a frequent and dependable sign. Fourth, painless or only mildly uncomfortable inability to maintain 90 degrees abduction against gravity in the presence of functionally intact axillary and supraclavicular nerves. Inability to maintain abduction must be due to either pain, paralysis or absent muscle action due to rupture.

The only sign which is pathognomonic of a cuff tear is displacement of a fractured fragment of tuberosity. When either tuberosity is fractured it remains in apposition to the humeral head only by virtue of intact tendon cuff fibers inserting into both fragment and parent bone. Gross displacement of the fragment signifies gross cuff damage. Significant persistent displacement is an indication for operative replacement and cuff repair at the earliest possible moment.

At one time all cuff ruptures were considered to deserve early repair. We now know that many cases require no repair and very few require immediate repair. About 25% of all unselected cadaver specimens (past 60 at the time of death) are found to have a torn shoulder cuff. Obviously one-quarter of all

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persons past 60 do not need a shoulder operation. This suggests that the remaining intact shoulder mechanism must compensate for the rupture in many cases. This has been found to be a fact; with conservative or no therapy many patients, while retaining the signs of a cuff tear, gradually lose all or almost all the symptoms and disability produced by the lesion. During the early painful period following rupture an accurate anatomic diagnosis is difficult. Since most ruptures take place through degenerated tendon tissue and are the equivalent of a long standing lesion at the time of occurrence anatomic reposition and healing per primum are precluded. For these and other reasons early repair is contraindicated in all but those few cases with massive cuff damage or displaced fractured tuberosity fragments. Conservative therapy should be used for at least two weeks or until the patient's subjective status has reached a stationary level. At that time repair may be contemplated, not because of the presence of a ruptured cuff per se but upon a basis of the persistent symptoms and disability which it may produce.

Conservative therapy consisting of maintainance of the arm in abduction has been said to help the healing of a torn tendon cuff. Such treatment is not only unnecessary but harmful, both to the healing of the rupture and to the patient. When the tear is incompletely through the thickness of the tendons the remaining intact fibers hold the ruptured fibers in place regardless of the position of the arm. Abduction rarely, if ever, can approximate the separated edges of a complete thickness tear, but instead usually compresses the retracted tendon stump between the humerus and the acromion to the further detriment of its already impoverished vascular supply. The immobilization required by continual abduction has a penalty far more severe than the original lesion; persistent muscle atrophy, permanent limitation of motion and development of a reflex sympathetic distrophy (hand-shoulder syndrome) have all resulted from such immobilization.

Therapy designed to control pain and maintain mobility of the shoulder is the most efficient form of conservative management. A sling and, at times, a swathe is used during the acutely painful stages following injury. Both are discarded as soon as symptoms permit. Simple home measures of a palliative measure are employed as needed and have proved more efficient than formal physical therapy. Gradually progressive active exercises at frequent intervals and resumption of use up to, but not past, the limits of pain or fatigue are insisted upon. Under this regime many patients, in whom the diagnosis of cuff tear is well established by clinical criteria, will recover so that their symptoms and disability are miminal or absent. For those whose symptoms or disability remain severe operative repair must be performed.

There are three prerequisites essential to successful operative repair. First, apposition of healthy tissue to healthy tissue, without tension at the site of repair. Second, restoration of continuity between the short rotator muscle bellies and the humerus. Third, restoration of a smooth surface for articulation with the acromion (or removal of the acromion). These prerequisites may be attained in some degree by the following general techniques. For ruptures through the incomplete thickness of the cuff and involving only the superior surface or buried within the tendon substance the damaged area can be removed by elliptical excision and the residual defect sutured side to side. For incomplete ruptures involving the deep surface of the cuff a flap of cuff may be elevated from the humerus, the torn portion removed and the tendon stump reattached to the bone. For complete thickness tears less than 3 cm. in width, a V excision back to healthy tissue and side to side apposition of the edges of the defect with a shoe-lace type of heavy silk suture, whose ends pass through drill holes and are tied lateral to the tuberosity, will generally effect adequate repair. For massive retracted tears the freshened end of the cuff is inserted into a trough cut in the humeral head at whatever position the cuff reaches without undue tension and is fixed there by mattress sutures through the bone. The great majority of cases require some combination of side to side and end to end repair. No standard technique is possible and no two lesions or repairs are identical.

During the painful wound healing postoperative period rest and comfort is provided by sling and swathe or balanced suspension. Gentle pendulum exercises are started when symptoms permit. The scope of the exercises is steadily increased and resumption of use within the limits of pain and fatigue is encouraged. The rapidity with which active motion and use of the arm against gravity are allowed varies with the size of the tear, the quality of the repaired tissues, and the mechanical efficiency and freedom from tension of the repair itself. Average postoperative hospitalization is about two weeks; return to light work ten weeks; and return to full work about 14 weeks.

Dr. Harrison L. McLaughlin, Chief of the Fracture Service, Columbia Presbyterian Medical Center and the author recently studied 100 consecutive cases whose ruptured shoulder cuffs had been surgically repaired. Of these 91 had no or minimal symptoms 6 months to 10 years following operation; 86 had no or minimal limitation of motion; 83 had returned to their former work and only 8 were limited to part time or light work. Since nearly a fifth of these cases were massive avulsions of the shoulder cuff it is obvious that careful operative repair is a well worth while procedure.

# THE USE OF PREFRONTAL LOBOTOMY IN TREATING INTRACTABLE PAIN WITH A REVIEW OF THE LITERATURE

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Until 1943, prefrontal lobotomies were done specifically for the treatment of certain psychotic conditions. At this time, Freeman and Watts[1] observed that patients with psychotic disturbances on whom bilateral prefrontal lobotomies were performed, did not appear to suffer somatic pain to the degree normally expected. With this observation in mind, elective operations were performed on a group of patients without mental disturbances who suffered from uncontrolled somatic pain.[2, 3] For the most part, the results have been quite satisfactory. There were, however, several disadvantages to the bilateral procedure. Early follow-up in many cases showed some undesirable effects on the intellect and personality.

In 1948, Scarff[4] attempted a unilateral prefrontal lobotomy with the belief that this procedure would be as effective in the relieving of the pain without the side-effect of personality change. This was also reported by Vogel and Hjartarson[8] and again by Portugal.[9]

The results of Scarff's first three cases were successful and he observed that in addition to relieving their pain, the preoperative addiction to narcotics was followed postoperatively by none of the customary withdrawal symptoms or signs. In the following 33 cases,[5] his results were good in 66%, fair in 18% and poor in 15%.

In 1946, LeBeau[6] tried bilateral topectomy in specific brain areas of the frontal region. This attempt was primarily made to avoid the possibility of mental slowing that frequently resulted from leukotomy. A series of 25 cases were reported and the results were good. Unilateral topectomy often failed.

In 1949, Horanyi[7] on the basis of a series of 42 cases, presented a paper on problems related to prefrontal lobotomy. He found that pain from cancer as an example, could be relieved by leukotomy but other sensory modalities such as touch, deep pressure, etc., were unimpaired. Patients remain capable of feeling pain apparently but psychic realization of pain and emotional reactions to pain disappear. Theories from the above evidence suggest the principle of progressive cortical dominance from the thalamus—hypothalamus toward the cortex. The experience of Horanyi confirms the fact that leukotomy produces a change on the patient's personality and the emotional life becomes more simple and adaptable. Personality traits tend to fade and individuals become uniformized. Various papers by Dynes and Poppen,[10] LeFever[11] and Hamilton and Hayes[12] all seem to concur and be in accordance with the above reviews. In a paper written by Falconer,[13] two cases were reported. One, a case of post-herpetic neuralgia and the second, a case of tabetic pains. His interesting observations were the complete disassociation of pain appreciation from pain perception. The patient perceived his old pain but no longer reacted to it. The emotions of the patient in each case became shallow and there were character changes with obvious peculiarities and mannerisms.

In all the above reviews, the physiology of the relief of pain by the lobotomy procedure is not definitely known. Various theories have been expounded but as yet, sufficient evidence is lacking for conclusive proof of the exact mechanism of pain relief.

Our experience with lobotomy for pain has been extremely limited. Our first case was obviously a poor choice as the patient lived only about a week following the procedure, dying of extensive metastasis. Adequate time for true evaluation had not passed but for a week following operation, there was no complaint of pain and at the end of this time, the patient became too irrational to evaluate our results. However, our second case was much more informative and encouraging and is therefore, reported more completely.

Mrs. G. W.—Age 59.

This patient was referred to the Neurosurgical Service of the Maine General Hospital, November 9, 1949.

A summary of previous admission records shows that patient was first seen in April of 1939 at which time, a biopsy-proven diagnosis of carcinoma of esophagus (base of left pyriform sinus) was made.

She was placed on deep X-ray therapy and in July, 1939, a gastrostomy was done for her dysphagia. In August of 1939, she was seen again at which time, another esophagoscopy was done which showed suspicions of extension of her case and she was given further X-ray therapy with marked improvement.

Patient was seen again in October, 1946, with complaints of hoarseness and dysphagia and bronchoscopy was done and revealed slight narrowing but no evidence of tumor.

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Next admission was December 5, 1946, for another esophagoscopy and at which time, a biopsy was taken showing only fibrosis, hyperkeratosis and chronic inflammation.

Patient was seen again in January, 1947, for stricture of esophagus and some dyspnea. She was also treated for epilepsy at this time — an affliction she has had at very infrequent intervals since the age of 14.

Last admission November 9, 1949, with complaints of very severe pain in the left side of her face, swelling below the left jaw, hoarseness and difficulty in swallowing and breathing. These symptoms began 10 months ago, at which time, she was seen by her attending E.N.T. doctor. An ulcerating carcinoma in the posterior portion of the left palate was seen and she was advised to take X-ray treatment. Twenty-two treatments by September, 1949, gave her little relief and she was, therefore, admitted on the Neurosurgical Service for possible posterior fossa exploration and section of V and IX cranial nerves plus upper cervical posterior roots for relief of pain. Examination of the mouth revealed a large sloughing necrotic area about 2 cm. in diameter on the posterior upper molar area of the left maxilla which extended to involve the buccal mucosa around that region. The exterior surface is marked by a firm indurated area about four to five cm. in diameter at about the midposition in the left mandible and extending down to about the neck.

This patient claimed to be allergic to penicillin, codeine, morphine, etc., and her pain could not be controlled by any opiates. A right frontal leukotomy was suggested and this was done November 14, 1949. With this, she obtained relief for several days and was apparently pain-free during this interval but within that duration of time, the pain returned with about the same severity. It was then decided to do a leukotomy on the left, frontal region and this was done November 23, 1949, under pentothal and nitrous oxide anesthesia. Her postoperative course was uneventful except for disorientation and euphoria. The facial pain had disappeared. Each succeeding day showed a very marked improvement. She did not complain of the pain and stated that she felt very well. At times, when questions were directed, she stated she had pain but that it did not seem to bother her.

*Convalescent Period:*

Patient was quite coöperative, very pleasant and quite euphoric. She moved around the ward quite well, talked to the other patients, helped the nurses make the beds and was most helpful in every respect. She was simple in her ways and at times, acted a little childish but was liked by the nurses and was very friendly. At times, she was slightly disoriented and babbled on different topics without any reason. For the first days of her postoperative period, she had enuresis but later, asked the nurses for the bed pan when she noticed an urge to void. Patient was transferred to Portland City Hospital December 13, 1949, due to difficulty in getting suitable living quarters and was followed at weekly intervals. There definitely was no pain experienced by the patient at any time. She became more oriented, recognized her family and friends and carried on an intelligent conversation without any of the simplicity exhibited immediately following her second operation.

Prior to her discharge from the Maine General Hospital, a large carbuncle-like lesion was seen on her left cheek which did not respond to treatment. Follow-up at the nursing home revealed the lesion to enlarge and ulcerate. This was due to further extension of the malignancy into the jaw and the ulceration progressed to the stage where the mandible was exposed and eventually a fistula into the mouth occurred.

It was remarkable that the patient did not have any discomfort or pain from this large ulcerating lesion. She recognized the examiner at each visit and apart from her natural embarrassment at having such a large unsightly lesion, was quite affable and pleasant.

She did realize her condition and remained quite stoical throughout her last few months of life. Eating and speaking became quite difficult but she still did not complain of pain. The carcinoma became more extensive and patient expired February 24, 1950, her last two months in comparative comfort, much to the gratitude of the relatives. From the day following her second leukotomy, she received no more medication for pain. At no time did she request such medication. During the terminal ten days, she was given small doses of barbiturates each evening for rest only.

## Summary and Conclusion

The literature on prefrontal lobotomy for the relief of intractable pain has been briefly reviewed.

Our experiences with one very gratifying case of relief of pain in extensive fungating carcinoma of the cheek and jaw have been summarized.

Our experiences as well as the recent literature shed some doubt on the efficiency of the unilateral procedure.

Careful follow-up and a re-education program is imperative in all patients having had lobotomy, and can minimize many of the untoward side effects such as marked personality change and mental inertia.

Bilateral prefrontal lobotomy has a definite place in the neurosurgeon's total armamentarium for the control of intractable pain from incurable malignancy. This is especially true in dealing with malig-

nancy around the head, face and neck. It is not a procedure to be used without careful consideration and judgement both as to the plausibility of the more routine neurectomies and tractotomies but also of the social implications of the procedure as far as opportunities for re-education are available. The case we have discussed illustrates that the procedure, if carefully considered and selected, may be very gratifying to the patient, his family and his physician.

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# FAMILIAL POLYPOSIS OF THE COLON

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Of all pre-malignant conditions none is more surely a precursor of cancer than familial polyposis of the colon. In this uncommon though not rare condition the mucosa of the colon and rectum in whole or in part is carpeted by innumerable polyps. These polyps undergo malignant degeneration at an early age in an alarmingly high percentage of cases. The condition has a definite familial incidence. Its diagnosis and treatment are a challenge to the surgeon. It is the purpose of this communication to report a family afflicted with this condition, to briefly review the literature and to present our views concerning treatment.

### Historical

Menzel,[1] in 1721, described lesions of the large bowel consistent with familial polyposis of the colon. Luschka,[3] in 1861, reported a 30-year-old female with the condition. In 1863, Virchow[5] gave an excellent pathological description. It was Cripps,[6] in 1882, who first noted its familial incidence and malignant potentialities establishing Familial Polyposis of the Colon as a clinical entity. Subsequent to this many families with the condition have been reported in the medical literature. Outstanding are the studies of Lockhart-Mummery and Dukes,[7] who reported 10 families followed three or four generations with many incidences of the disease. McKenney[8] and Rankin[9] have each reported three families with the condition. In 1947, Guptill[10] added five new cases to the total of 347 cases which he had collected from the literature. One is impressed with the consistent familial tendency and the high incidence of malignant degeneration as well as the lack of standardized treatment.

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### Etiology

Of all reported cases the vast majority show a hereditary predisposition establishing it as a familial disease distinct from other types of polyposis of the colon. Isolated cases are reported and adequate explanations for them can be found in the complete family and medical history of the particular case. To date, no newborn infant has been discovered with the disease, though McKenney[8] reports the condition in a boy two years of age.

Little else can be said regarding the etiology except that the proliferative characteristic of the epithelium is transmitted from parent to offspring. This transmitted characteristic is variously reported as being dominant or recessive, but it is our observation that the genetic pattern is inconsistent in different families, and in different generations of the same family. For this reason we feel that it cannot be classified as either dominant or recessive.

### Pathology

In this condition areas in the colonic epithelium have undergone pathologic proliferation producing exuberances termed polyps. These may be sessile or pedunculated. The proportion of sessile to pedunculated polyps can be correlated with age and duration of the disease. In younger individuals shortly after

onset the polyps are almost exclusively sessile. In older individuals with long-standing disease there are large numbers of the pedunculated type. It was also noted in our cases, as previously stated by McKenney,[8] that there was an increase in size and number of polyps with age and duration of the disease.

The colon and rectum are involved with polyps in whole or in part. It is most common to find polyps in the entire colon, 69% in the series of Coffey and Bargen.[11] In some instances only the sigmoid and rectum and in rare instances only the transverse and ascending colon are involved. The exact degree of involvement can be determined only by direct visualization of all of the colonic and rectal mucosa. The external appearance of the bowel is normal unless malignant degeneration has occurred. The polyps are small in size and soft in consistency; hence are frequently not palpable through the bowel wall. It has also been noted that uninvolved areas became involved as the disease progresses.

Microscopically the polyps are made up of columnar epithelium and in the benign state are very orderly and uniform in appearance. The polyps vary in size averaging from 4 to 8 mm. in diameter.

There is no question that malignant degeneration takes place in an extremely high percentage of cases. Bargen and Coffey[11] report 82.3% malignant degeneration in familial polyposis of the colon. Malignant degeneration occurred in 33% of the series of Mayo and Wakefield[4] and also in the series of McKenney.[8] Hullsiek[12] reported carcinoma in 46 of 128 cases. These reported percentages are undoubtedly low since none have been followed without treatment, or with treatment for a sufficient period of time to draw definite conclusions. We feel that malignant degeneration would occur nearly 100% if followed a sufficient period of time without treatment. The age at which malignant degeneration occurs varies. McKenney[8] reports a child of 13 with familial polyposis of the colon dying of a perforated carcinoma of the sigmoid. There are many reports[12] of death from carcinoma of the colon in individuals with familial polyposis past the fifth decade. In spite of these extremes by and large the major incidents of malignant degeneration has been reported between the 30th and 40th year.

Because of its importance in determining treatment, particularly in children, the time when malignant degeneration can be anticipated is of vital significance. This, we feel, is more a function of the age of the disease and hence the size of the polypi rather than the actual age of the patient. The familial factor appears to show definite consistency in the age of onset of the disease in a given family group. This is borne out by McKenney's[8] experience. Hence it seems reasonable that the age at which malignant degeneration will occur can be predicted within wide limits in a given family.

## Symptomatology and Diagnosis

Symptomatology in this condition varies from the picture of early large bowel malignancy to the complete absence of bowel signs. If the diagnosis depends on a well established clinical picture of large bowel dysfunction, it will seldom be made in the early stages when treatment will offer best opportunity to affect cure. None of the patients in our series had symptoms severe enough to cause them to seek medical attention. However, careful questioning in some instances revealed a history of intermittent mild diarrhea with mucus and blood-streaked stools. Upon discovery of one instance of the condition it is the responsibility of the physician to explain its seriousness, its familial characteristic and to acquaint himself with the geneology of the family, advising examination to all suspects.

Confirmation of the diagnosis lies only in the demonstration of the characteristic lesions in the large bowel by digital examination of the rectum, sigmoidoscopic examination and barium and air contrast X-ray studies of the colon. Negative findings in any one of these three procedures is of no significance, since a whole or any part of the large bowel can be involved. Estes[13] reported a female, 35 years of age, with no symptoms and negative proctoscopic and rectal examinations; barium and air contrast X-ray studies of the colon revealed diffuse polypi of the transverse and ascending colon. The importance of special techniques, such as the use of tannic acid barium mixtures and air contrast X-ray studies in search of polypi, has been well demonstrated by Christie, Coe, Hampton and Watt.[14] It is also important because of the varying age of onset in different family groups and in different members of the same family to emphasize the importance of repeated examinations at different short intervals. Lockhart-Mummery[18] reported a male, 39 years of age, with no evidence of polypi in spite of a significant family history. This individual was examined again four years later and was found to have well advanced polyposis of the colon.

## Treatment

Familial polyposis of the colon is a pre-malignant condition; its occurrence in a part implies potential involvement of the remaining large bowel. The only assurance of protection against malignant degeneration lies in complete extirpation of the large bowel. This premise is subject to modifications in certain instances depending on the age of the patient and the duration of the disease.

In adults treatment should be based on the presumption that malignant degeneration is imminent, making total colectomy necessary. Terminal ileostomy and removal of the colon to the lower sigmoid in one stage is often feasible in a young, good risk patient. This is followed by an abdominal perineal resection of the recto-sigmoid. In rare instances where there is no disease in the recto-sigmoid preservation of this segment and anastomosis with the terminal ileum is practicable. Under these circumstances the importance of a painstaking follow-up at frequent intervals must be realized. In this way the earliest manifestations of the disease in the recto-sigmoid may be discovered.

There are some authors[15, 10, 19] who believe that when the disease is sufficiently limited in the recto-sigmoid that ileo-sigmoidostomy or ileo-proctoscopy followed by fulguration of the polypi in the remaining recto-sigmoid is rational treatment. Our experience and review of the literature leads us to doubt the wisdom of this procedure. Our skepticism is based on the following facts: (1) Polyps recur rapidly in areas that have been previously fulgurated; (2) polyps are frequently so numerous that fulguration is not practical; (3) malignant degeneration can occur and advance very rapidly. Ravitch and Sabiston[16] report a 16-year-old female treated with ileo-sigmoidostomy and fulguration of the rectal and sigmoidal polyps who died from carcinoma in the rectal stump 9 years after the initial surgical procedure. Jones[17] reports a 27-year-old white female treated with ileo-sigmoidostomy who died 4½ years later from carcinoma in the rectal stump. Other authors have had similar experiences.

In adolescence, the treatment of this disease is fraught with the hazards of nutritional deficiencies incident to an ileostomy. Therefore, in certain circumstances a temporarily more conservative attitude is justifiable. We feel it is possible to predict the age at which malignant degeneration will occur within wide limits, on the basis of duration of the disease, the observed size and number of the polyps, and the age at which malignant degeneration has occurred in antecedents or siblings. If these factors indicate that malignant degeneration will not occur until after maturity, the risk of careful observation and postponement of surgery is less. The problem must still be faced surgically at the opportune time.

## Case Reports

The diagnosis of familial polyposis of the colon in this family was established when a suggestive family history and large bowel symptoms were elicited from a member of the family admitted to the Maine General Hospital for other complaints. This patient, L. O., a 29-year-old white male was admitted to the hospital with a chief complaint of symptoms suggestive of a duodenal ulcer of two years' duration, confirmed one year previously by X-ray. He also complained of daily gross blood per rectum for three months. Family history revealed that his mother had died at the age of 41 and an older sister had died at the age of 34 from cancer of the large intestine. Physical examination revealed a healthy achondroplastic dwarf except for many small polypi palpable in the rectum. Sigmoidoscopy revealed the entire recto-sigmoidal mucosa to be covered with innumerable sessile and pedunculated polyps. Barium enema and air contrast X-ray studies of the colon revealed polyposis of the left colon and questionable involvement of the right colon. Biopsy of the recto-sigmoid area revealed mucosal polyps without evidence of malignancy. More than 20 sigmoidoscopic fulguration procedures were carried out with complete failure to control the lesions in the recto-sigmoid. Therefore, the plan of colectomy and ileo-sigmoidostomy was abandoned. On July 24th, 1948, a terminal ileostomy with extirpation of the right colon was performed. The pathological examination revealed no polyps. The patient recovered after a stormy post-operative course due to fluid imbalance and ileal fistula. A left colectomy to the level of the upper sigmoid and rectum was performed on November 15th, 1948. On March 14th, 1949, the remaining sigmoid and rectum were resected and a Ravich type anal ileostomy was established. Pathological examination of the descending colon, sigmoid and rectum revealed many non-malignant polyps. The post-operative course was complicated by urinary incontinence, retention and infection. Adequate fecal continence was never established so that an abdominal type of ileostomy was formed in March, 1950. At this time three large retroperitoneal tumors invading the mesentery of the small bowel were found. Biopsy revealed them to be leiomyomata. Resection of these tumors was impossible because it would have necessitated removal of most of the small bowel. He has recovered from this and at the present time is working part-time.

*Discussion:* The Ravich[15] anal ileostomy, while theoretically sound, was not successful in our hands. Because of the more serious complications, the morbidity is greater and the patient is exposed to greater risk. If fecal continence is not gained, the care of a perineal ileostomy is obviously much more difficult than an abdominal ileostomy. The patient was able to control the anal ileostomy partially, but stricture formation and marked excoriation of the skin about it necessitated an abdominal ileostomy.

P. D.,* a 20-year-old white female, sister of L. O., submitted to examination at our request. Her history was negative except for very mild recurrent diarrhea

* Examined courtesy of H. F. Smith, M. D., Jackman, Maine.

of about one year's duration. Rectal examination revealed many small polyps. Sigmoidoscopy revealed the rectum and sigmoid to be carpeted with many 3 to 8 mm. polyps, both sessile and pedunculated. Barium enema and air contrast X-ray studise of the colon revealed the entire colon to be involved with these polyps. Upper gastrointestinal series was negative. A total colectomy from cecum to mid-sigmoid with a terminal ileostomy was performed on July 29th, 1949. Pathological examination revealed the mucosa of the entire colon to be studded with thousands of sessile and pedunculated polyps with no evidence of malignancy (see Figure I). The patient's recovery was complicated by the necessity for resection of terminal gangrenous ileum caused by volvulus. She was discharged on August 20th, 1949, in good health. She was re-admitted on February 12th, 1950, at which time an abdominal perineal resection of the recto-sigmoid was performed. Pathological examination of the specimen revealed many non-malignant polyps. She was discharged on March 11th, 1950, after an uncomplicated postoperative course. She is in excellent health at the present time and is well adjusted to the abdominal ileostomy.

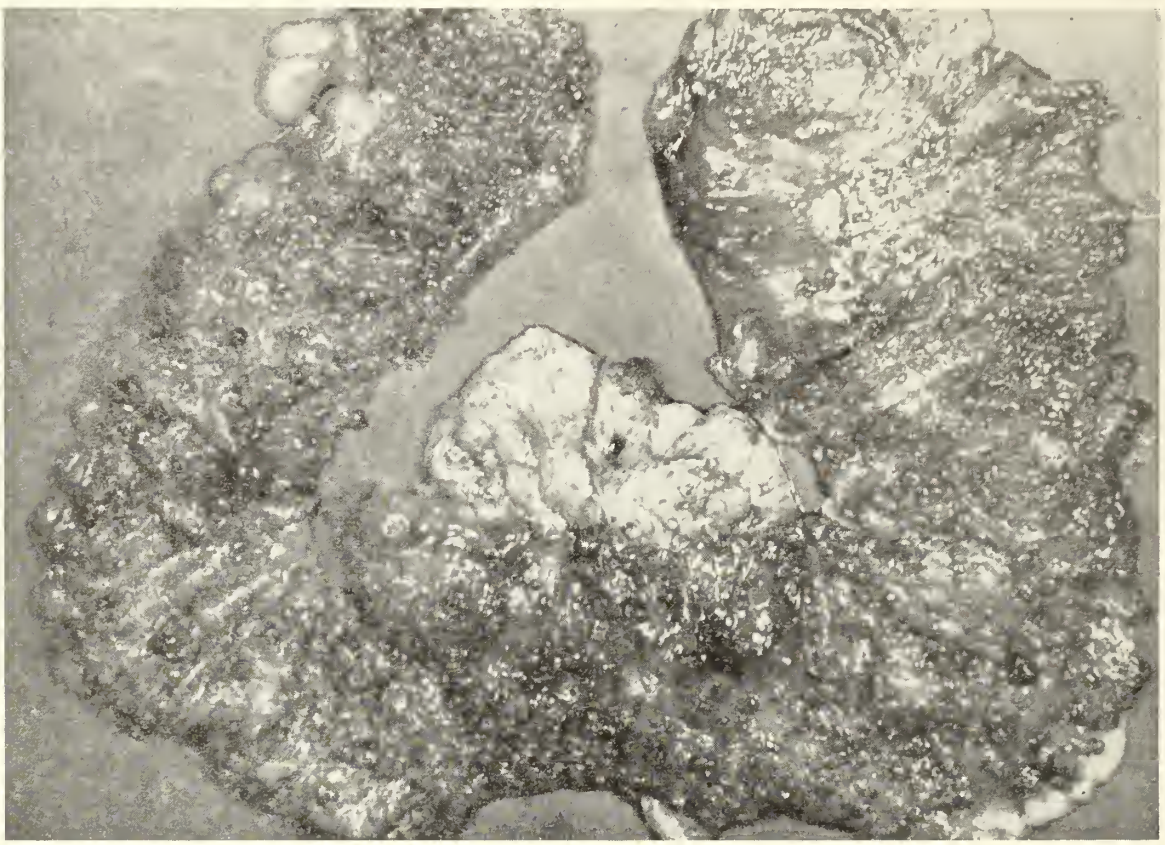


Figure I. Photograph of Colon Removed from P.D. showing diffuse distribution of Polypi.

*Discussion:* We consider this to be the procedure of choice in treating familial polyposis of the colon. It is attended with fewer complications, less morbidity and eliminates all of the potentially malignant large bowel mucosa.

A. O., a 26-year-old male, brother of the two patients presented above, submitted to examination at our request. History was essentially negative. Rectal examination revealed many small polypi in the rectum. Sigmoidoscopic examination revealed the rectum and lower sigmoid to be studded with many polyps. Barium enema and air contrast X-ray studies of the large bowel revealed the entire colon to be involved with polypi (see Figure II). The patient was referred to a local Veterans Administration Hospital where a total colectomy and a low ileo-sigmoidostomy was performed. Pathological examination revealed the entire colon to be involved with polyps, none showing malignant degeneration. He made an excellent recovery and at the present time about one year after the initial operative procedure is undergoing frequent fulgurations of the polyps remaining in the sigmoid and rectum.*

* Courtesy Howard R. Ives, M. D., Portland, Maine.



Figure II. Barium Enema X-ray Study of Colon in the Case of A.O. showing Polypi.

*Discussion:* While several authors recommend this procedure it is our feeling that it is unwise to leave the sigmoid and rectum with their malignant potentialities.

D. Y., an elder sister of the above patients died at the age of 34 from cancer of the large intestine after multiple operations. She gave birth to three daughters, all of whom have been examined at our request.

La. Y., a 17-year-old female, first examined in May, 1949, was found to have many very small sessile polyps. When re-examined in May, 1950, these polyps had definitely increased in size, a few having become pedunculated. She has had no symptoms except for the passage of a small amount of blood-tinged mucus per rectum on one occasion. Barium enema and air contrast X-ray studies of the large intestine were negative.

Lo. Y., a 16-year-old white female, was first examined in May, 1949, with negative findings. In May, 1950, when re-examined, many small sessile polyps were seen on sigmoidoscopy. X-ray studies were negative. She has had no symptoms.

F. Y., a 14-year-old white female, was first examined in May, 1949, with negative findings. In May, 1950, many small sessile polyps were seen on sigmoidoscopy. X-ray studies were negative. She has had no symptoms.

*Discussion:* In considering recommendation for treatment for these three children two facts are important: 1. There has been no known instance of cancer of the colon in their antecedents before the age of 30. 2. The polyps first appeared in these children between the ages of 13 and 14 years and are slowly progressive in size. With these facts at hand we feel it is safe to predict that malignant degeneration will not occur before the 25th year in these children, and hence consider it wise to follow them closely and to defer ileostomy and total colectomy until maturity has been reached.

The accompanying chart summarizes the findings in this family. Several members of the family have been examined repeatedly and have been found free from the disease. The mother, M. O., died from cancer of the colon at 41 years of age. No history concerning her siblings or parents was obtainable. She gave birth to 10 children, 3 having polyposis of the colon, and one having died from cancer of the colon at 34 years of age. The three children of the latter have polyposis of the colon.

## Summary

1. The clinical entity of Familial Polyposis of the Colon is reviewed.
2. It is a disease characterized by a high incidence of malignant degeneration at an early age.
3. The diagnosis is best established on the basis of a familial history and repeated painstaking examination of the large bowel of all suspects.
4. The treatment is surgical extirpation of the entire large bowel.
5. Experience with one family and six cases are presented.

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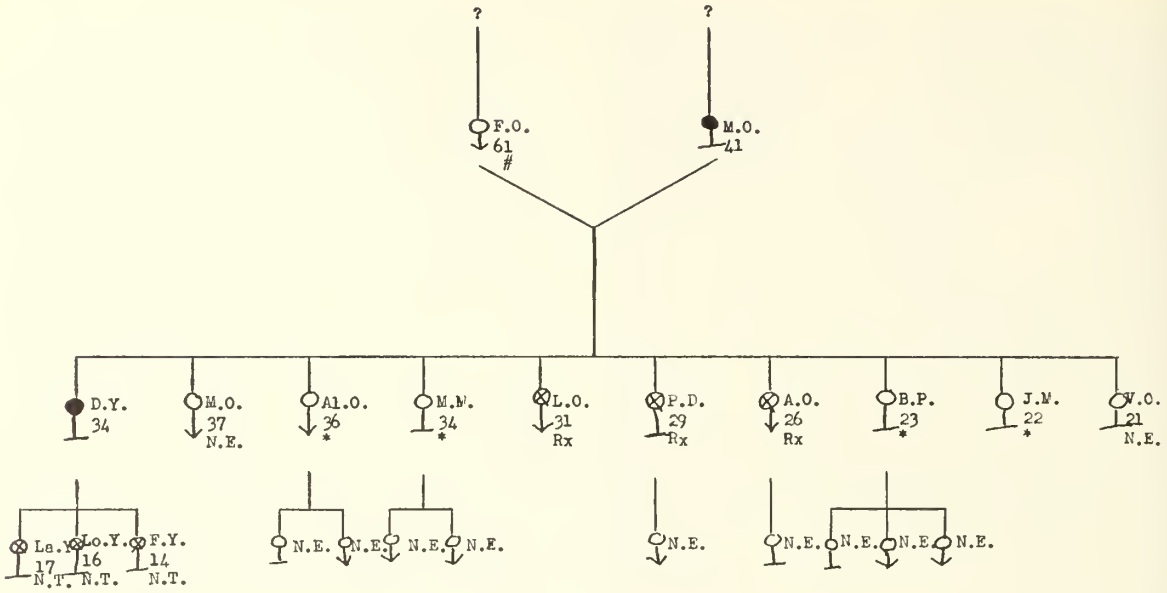



Chart demonetrating the femily tree

KEY:

- ● - Deed Cencer of Colon
- ⊗ - Diagnosis of Polypoeis of Colon Established.
- * - Examined end found negative.
- Rx - Polyposis of colon treated.
- N.T.- Polyposis of colon not treated.
- N.E.- Refused examination
- # - Died from other disease
- ♂ - Male
- ♀ - Female

M.M. exemined courtesy W. A. Albro, M.D., Brewer, Maine
J.M. exemined courtesy H. T. Guere, M.D. Bennington, Vermont


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The care, the study and the teaching of tuberculous disease today should be the responsibility of the broadly trained medical internist-investigator in close association with the highly proficient, experienced chest surgeon as part of the larger problem of the better understanding and control of all cardio-pulmonary diseases involving the chest. Such an all-inclusive chest service should be an integral part of every large general hospital and medical teaching center, in the best interests of patients, physicians, undergraduate medical students and resident staff. This means medical center segregation in the future, rather than sanatorium isolation as in the past, with the tuberculous patient receiving equal acceptance and complete attention, including prompt recognition and specific treatment of his nontuberculous complications which ofttimes threatens his existence more seriously than does the tuberculosis, itself.—*Ohio Pub. Health*, May, 1950, Charles A. Doan, M. D.

# THE 1949 POLIOMYELITIS EPIDEMIC

Edward M. Cook, Jr., M. D.,* Thomas Anton, M. D.,* and Edward S. Sherwood, M. D.**

The medical service of the Maine General Hospital admitted 62 cases of poliomyelitis during the six-month period from June through November of 1949. The pediatric and private services admitted many other cases during that period which are not considered in this report. The clinical diagnosis was substantiated, in every instance, by positive spinal fluid findings. Forty-nine of our patients showed no evidence of residual paralysis, when discharged, as contrasted with thirteen who showed definite paralysis, a ratio of nearly 4 to 1. Certain similarities and differences between these two groups are of interest and deserve emphasis.

The 62 cases were almost equally divided between the sexes, 33 females and 29 males. Eight of the thirteen patients with clinical paralysis, were females and five were males; indicating a sex predominance which is probably not significant. One male, with paralysis of the bulbo-spinal type, constituted our only mortality. Twenty-five were females and twenty-four were males of the forty-nine showing no evidence of residual paralysis, again demonstrating an almost equal division between the sexes. Ages varied from fifteen to sixty years. Nineteen patients were under twenty years and only nine were over thirty years. The remaining thirty-four were in the twenty to thirty year age group. There was no significant age difference between the paralytics and non-paralytics.

Symptom onset varied from one-half to twelve days prior to admission. Predominating symptoms, in order of frequency, were headache, neck stiffness, nausea and/or vomiting, backache, eye pain, pain in extremities, weakness of extremities, dysphasia and dysphagia. The paralytics, as a group, had a significantly higher percentage of symptoms than the non-paralytics. (Chart 1.) The severity of the symptoms seemed to be about the same in each group with the exception of weakness which was greater in the paralytic group, as would be expected.

Symptoms

(Chart 1)

| | Total | Headache | Stiff Neck | Nausea Vomiting | Backache | Eye Pain | Pain in Ext. | Weak Upper Ext. | Weak Lower Ext. | Dysphasia and Dysphagia |
|---|---|---|---|---|---|---|---|---|---|---|
| Non-Paralytics | 49 | 49<br>100% | 35<br>71% | 34<br>69% | 31<br>65% | 23<br>47% | 15<br>30% | 4<br>8% | 10<br>20% | 1<br>2% |
| Paralytics | 13 | 12<br>92% | 11<br>84% | 12<br>92% | 11<br>84% | 3<br>23% | 9<br>69% | 7<br>53% | 11<br>84% | 3<br>23% |

Headaches were usually bifrontal in location. They were more severe than any previously experienced by the patient and were not relieved by common household analgesics. The eye pain was usually localized just behind the eye and motions of the eye aggravated the severity of this pain. There was no associated lacrimation or injection of the eye. Photophobia in association with the pain was complained of occasionally but was not common. This symptom is not mentioned in the standard texts on polio.[1] It was noted primarily in the non-paralytic cases. The neck stiffness was not severe in most cases and could more correctly be called a resistance to unusual flexion of the neck. This resistance was associated with tenderness of the muscles of the cervical spine in an occasional case.

Backache was commonly associated with neck stiffness and was always associated with tenderness and spasm of the lumbar muscles. Nausea and/or vomiting was transient and accompanied severe headaches. About one-quarter of the patients required supplemental intravenous feedings for a short period of time.

Muscles of the calf, upper arm, and shoulders, in that order, were the common sites of pain in the extremities. Muscle pain and tenderness that persisted indicated a poorer prognosis, although there seemed to be no correlation between the severity of the early symptoms and the eventual outcome. Dysphasia and dysphagia were followed by permanent weakness of the soft palate in all cases except one.

Two non-paralytics and five paralytics had weakness of both upper and lower extremities. One non-paralytic showed dysphagia and dysphasia as well as

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** Intern in Medicine, Maine General Hospital.

weakness of the extremities and was believed by the psychiatric service to have a psychic overlay.

Upper respiratory infections, prior to the onset of polio symptoms, were noted by 9 of 10 paralytics (90%) and 14 of 28 non-paralytics (50%). The remainder of the patients either did not remember or were not specifically questioned. The symptoms usually consisted of a sore throat and a nasal discharge. This may be significant as the higher percentage of paralytics, with previous upper respiratory symptoms could represent a decreased resistance to the polio virus as a result of the previous illness.

Routine laboratory work-up included spinal fluid examination, complete blood count, sedimentation rate and serology.

## Spinal Fluids

(Chart 2)

| | *White Blood Count* | | | | *Elevated Protein* |
|---|---|---|---|---|---|
| | 10-50 | 50-100 | 100-200 | 200 | Over 45 MG |
| Paralytics | 7 | 4 | 1 | 1 | 7 |
| Non-Paralytics | 20 | 13 | 11 | 5 | 21 |

Two patients, one paralytic and one non-paralytic had spinal fluid cell counts of over 300. In no instance, were there over 400 white cells. The majority (70%) had less than 100 white cells. The total protein was found to be elevated in only 45% but this figure is probably incorrect. The laboratory instituted an improved method of determining total proteins in the fall of 1949. A large percentage of cases showed an elevation following the change. There was no significant difference in the spinal fluid findings of the paralytics and non-paralytics. (Chart 2.)

Spinal fluids from five cases showed, on differential counts, over 50% polymorphonuclears. Symptom onset in these cases began ½ to 4 days prior to the examination. The fluids on 42 other cases also taken within ½ to 4 days after symptom onset, showed a predominance of monocytes. This indicates that monos usually predominate throughout the disease although a predominance of polys may be found early in the course.

(Chart 3)

| | *White Blood Cell Count* | | | | *Sedimentation Rate* | |
|---|---|---|---|---|---|---|
| | Total | 0-7000 | 7-10,000 | 10,000 | Total | Elevated |
| Paralytics | 12 | 7 | 2 | 3 | 9 | 5 |
| Non-Paralytics | 45 | 24 | 17 | 4 | 44 | 27 |

The white blood count was within normal limits in over fifty percent of the examinations. All cases, with two exceptions, showed a predominance of polymorphonuclears. The higher percentage of counts of over 10,000 in the paralytic group is significant. The three cases were the most severe paralytics that we had, and the counts were taken in the acute phase of the disease.

Corrected sedimentation rates (Wintrobe) were elevated in 58% of the examinations. The normal, in this hospital, is considered to be below 15 mm. per hour for males and 20 mm. per hour for females.

Serologies were taken on 11 paralytics and 44 non-paralytics and found to be negative. Blood sera were sent to the Virus Laboratories in Montgomery, Alabama, to rule out disease other than polio. These sera were taken during both the acute and convalescent stages of the disease. Ten samples were sent. Five have been reported as negative for Eastern and Western equine encephalitis and two have been reported negative for lymphocytic choriomeningitis.

Mumps meningo-encephalitis was also considered as the possible etiology of the non-paralytic cases.[2] Forty-two non-paralytics were questioned. Thirty-eight had had mumps, two had not, and two did not know. The possibility of a separate and distinct virus occurring concomitantly with polio and causing the same symptoms, without paralysis, could not be ruled out.[3]

Direct contact with infected individuals is considered to be a probable way of contracting the polio virus.[4] There were eleven cases with definite direct contact in this group. A twenty-six -year-old man and his twenty-six-year-old wife were in the hospital at the same time. The husband developed weakness of the soft palate. His wife had no residual. A fifteen-year-old boy and his sixteen-year-old sister were hospitalized together. They were both non-paralytics. An interne, a dietitian, and five student nurses from this hospital contracted the disease. Each had been directly exposed to polio patients. A student nurse

and the dietitian had slight residual weakness of a few muscles.

Swimming in contaminated water is also believed to be a way of acquiring polio.[5] Direct questioning revealed that 3 of 8 paralytics and 21 of 38 non-paralytics had been swimming at some time during the month prior to onset of symptoms. The swimmers comprised over 52 percent of those questioned.

Pregnancy presented an interesting side light in four of our patients. Miscarriages occurred in two cases. In one instance, a premature separation of the placenta was believed to be the cause of the miscarriage. The fetuses were both stillborn. They were estimated to be at about the 3rd and 8th month of gestation, respectively. An autopsy performed on the 8 month fetus revealed no evidence of polio.

## Summary

The medical service of the Maine General Hospital admitted 62 cases of poliomyelitis during the six months from June through November of 1949. Spinal fluid findings substantiated the clinical diagnosis in every case. Thirteen cases had paralysis, and forty-nine had no evidence of residual paralysis when discharged. There were 33 females and 29 males. Ages varied from fifteen to sixty years.

Symptoms began one-half to twelve days prior to admission. Predominating symptoms were headache, neck stiffness, nausea and/or vomiting, backache, eye pain, pain in extremities, weakness of extremities, dysphasia and dysphagia. Paralytics had a higher percentage of symptoms than non-paralytics, but severity of the symptoms seemed to be about the same in each group. Upper respiratory infections were noted, prior to the onset of polio symptoms, by a large percentage of paralytics.

Routine laboratory work included spinal fluid examination, sedimentation rate, complete blood count, and serology. The majority of spinal fluids had counts of less than 100 white cells. Differentials showed a predominance of monocytes, throughout the disease, in nearly every case. Five patients, only, had a polymorphonuclear elevation early in the course. The total protein was elevated in 45% of spinal fluids. This figure would probably be higher with new, improved methods for determination. There were no significant differences between the spinal fluid findings of the paralytics and non-paralytics. The white blood counts were within normal limits in over fifty percent of examinations. Seven cases, only, had counts of over 10,000 white cells. Three of these were severe paralytics in the acute phase of the disease. Sedimentation rates were elevated in fifty-eight percent of examinations. Serologies were negative in all cases on which they were taken.

Virus studies, on blood from non-paralytic cases, were reported as negative for eastern and western equine encephalitis and lymphocytic choriomeningitis. Mumps meningo-encephalitis was also ruled out. Histories revealed that 93 percent of those questioned had had mumps previously.

Contact with infected individuals and swimming in contaminated waters are considered probable ways of contracting the polio virus. There were eleven cases of definite contact in our series. Direct questioning of 46 patients revealed that only 52 percent had been swimming during the month prior to the onset of symptoms.

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The final diagnosis in pulmonary tuberculosis rests upon the demonstration of the tubercle bacillus just as that of carcinoma of the lungs depends upon histologic proof. A reasonable certainty of predicted diagnosis can be obtained in about four-fifths of the cases with only the usual X-ray examination such as posteroanterior, oblique or lateral films. — Merrill C. Sosman, M. D., *New England J. Med.,* June 1, 1950.

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Little attention is paid to health, and it is often considered in the negative sense of absence of disease. It is challenging to current thought to point out that health and disease are not static entities but are phases of life. . . . Health, in a positive sense, consists in the capacity of the organism to maintain a balance in which it may be reasonably free of undue pain, discomfort, disability, or limitation of action including social capacity. — John Romano, M. D., *J. A. M. A.,* June 3, 1950.

## DEPARTMENTAL

# NURSING EDUCATION IN PORTLAND'S COMMUNITY MEDICAL CENTER

Edith H. Doane, R. N., Director, School of Nursing and Nursing Service, Maine General Hospital, Portland, Maine

The changing pattern of nursing education is, to a great extent, the response to evolutionary changes in the field of medical science. The highly technical procedures of medical and surgical specialties and the diagnostic and rehabilitative programs today require a far higher level of understanding, recognition of symptoms, and technical performance on the part of nurses than could be demanded of the twenty to twenty-four hour duty nurses of a relatively few years ago. The nurse of today must go far beyond mastery of the simple comfort measures to understand the intricate mechanisms of negative pressure, the operation of numerous other mechanical devices, the manifestations of chemotherapy, as well as recognizing, in her care of the patient, the broad implications of psychosomatic medicine.

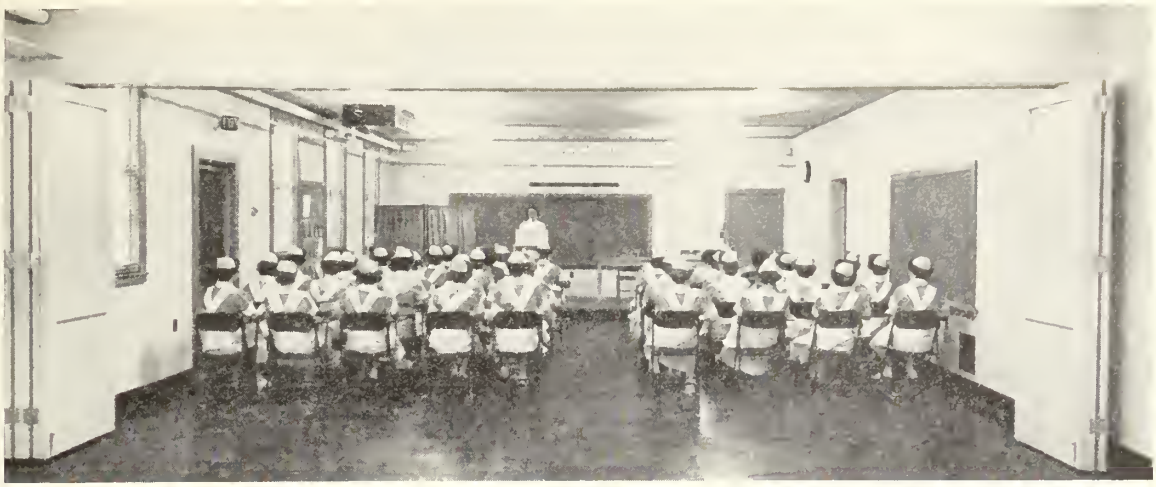
Is it to be wondered then, that never before in the history of nursing have its educational methods attracted more attention nor been subjected to more rigid analysis? Leaders in the field of general education, the medical profession, hospital administrators and nurses themselves hold different points of view as to how best we may prepare the professional nurse to meet the newer demands made upon her. Dynamic leadership in nursing education and nursing service will enable us to avoid the mistakes of the past and help make the adjustments necessary to insure more adequate health care for every citizen. The never-ending task of improving both the quality and quantity of nursing care calls for an honest appraisal of nursing education and continuing effort on the part of those who accept this as their common objective.

Evaluation of the existing system of professional nursing education and that proposed by Lucille Brown, Ph.D., in her study entitled, "Nursing for the Future," is beyond the scope of this presentation. It is worthy of note, however, that Dr. Brown's recommendation that control of all professional nursing education be taken away from the hospitals and vested in the college or university, represents a radical departure from traditional methods in nursing education. Regardless of the extent to which this system becomes accepted, the present limited facilities within the institutions of higher learning, together with the cost to the student of such a program will necessitate continuance for the present of nursing education within the hospitals. This fact makes urgent a thorough study and improvement of present programs conducted by hospitals. The need is more apparent when one stops to realize that even the most radical and progressive thinkers today hope that hospitals will continue to accept their responsibility toward the education of the student of nursing by making the hospital clinical facilities available for instructional purposes.

The rapid development of the Maine General Hospital as a community medical center has fostered the team approach to the problem of analyzing our school of nursing and planning a program sufficiently broad to meet the increasing demands for technical competence, together with providing skilled bedside nursing care. The key to mutual understanding between the medical staff, the hospital administrator, and the nursing school faculty lies in acceptance of our common goal—that of better health care. We point with pride to the fact that here at the Maine General Hospital we have progressed in our professional relationships beyond the stage of blaming each other for existing conditions to a full recognition of the value of group participation. It is a significant fact that on our actively functioning School of Nursing Advisory Committee there are two outstanding members of the medical staff, one of whom has been chairman of the subcommittee on Education of the Advisory Committee, and the other chairman of the Student Recruitment Committee. Such willing and conscientious participation by our doctors has been of inestimable value to the School.

During the past year, we have engaged in an extensive re-evaluation and reconstruction of our curriculum content and methods of instruction. Our first step was that of defining and clarifying our own aims and objectives. The following statement of aim appears in our recently revised School bulletin:

> "It is the aim of the School, by offering a sound basic course in nursing care, to direct the student in learning to give intelligent and skilled general nursing care, acquiring an understanding of social and health problems as they affect the individual thus making her an integral part of the community health team, and developing her individual aptitudes and personality in order that she may function effectively in a democratic society."



Four major considerations have guided us in revamping our curriculum; namely, the need for a greater awareness of the patient as an individual and his total nursing care needs; the larger demands made upon nurses as a result of the more exacting and complicated methods of medical diagnosis and treatment, the expanding function of the professional nurse as a member of the health team; and desirable and attainable standards as developed by the National Nursing Accrediting Service. Enrichment of the curriculum has been achieved through the splendid coöperation of the medical staff who for years have given of their time and knowledge in lecturing to the students. For example, last year fifty-one doctors contributed two hundred and twenty-three hours of instruction in the classroom alone, to say nothing of the hours spent in informal teaching in the clinical divisions as opportunity and need arose. Their contribution is one factor which makes possible the establishment of tuition fees far below the value of the education received.

The development of clinical teaching programs in each of the major clinical divisions has helped to restore to nursing an appreciation of the patient as an individual, since in this method of teaching, the learning is related directly to the patient and the student is taught to minister not only to the patient's physical needs, but to his mental, emotional, and spiritual needs as well. Our staff of thirty-one residents and internes are willing and eager to assist with this phase of the school curriculum. The students of nursing, insofar as possible, are assigned to the various clinical areas on the basis of their educational needs, whereas, in the past, the clinical assignments were designed primarily to meet the nursing service needs.

In acceptance of the role of the professional nurse as a member of the health team, we have, in our faculty, provision for a specialist in the field of public health whose function is that of coördinating the health and preventive aspects of nursing throughout the entire curriculum. As this program becomes more effectively developed, it will serve to link the hospital more closely to the public health and social welfare agencies within the community. At the same time, it will aid the nurse to function with greater efficiency in the broad psychiatric, communicable disease, and preventive health programs. The Maine General Hospital was, incidentally, the first hospital in the state to provide for this type of program.

Cost analysis of good hospital schools of nursing reveal that such schools, rather than providing inexpensive nursing care are actually an expense item in the budget of the hospital. To date, most colleges and universities have been unable to absorb, to such an extent, the cost of educating the professional nurse.

Our Board of Directors, with full awareness of the costs, accepts the responsibility of educating professional nurses. A qualified faculty provides the best available instruction and supervision. The employment of graduate general staff nurses protects the program from exploitation by relieving the students of excessive evening and night duty, and work assignments that become unduly repetitious. Our present nursing staff consists of one hundred and twenty-three graduate nurses and one hundred and sixty-two students. Contrast this with a staff of fifty-three graduates at one time during the recent war when our student enrollment was two hundred.

The large number of applications to the School of Nursing permits enrollment of only those with high scholastic and personal qualifications. Candidates must follow a prescribed course of instruction in high school and are required, before admission, to take a pre-nursing aptitude test. They must satisfactorily pass a complete health examination given by our school physician. Fees payable over the three-year period total two hundred dollars. Scholarship and

loan funds are being established to aid worthy students.

Our physical facilities, although admittedly inadequate for our rapidly expanding program of nursing education, were improved last year by the opening of a new and thoroughly modern teaching unit consisting of two well-equipped classrooms which, when combined, become a spacious assembly room with ample accommodations for the student body. (See illustration.)

Over thirteen hundred nurses have been graduated from the Maine General Hospital School of Nursing. We are justifiably proud of the record of achievement of these graduates who have functioned in many branches of civilian nursing and in the armed services. Throughout Maine and many other states, they hold positions of responsibility in hospitals and public health agencies including industrial nursing as well as serving in the role of private duty nurse, doctor's office nurse and in many other distinctive fields requiring the skill and knowledge of the professional nurse.

Our hospital is better qualified than ever to educate young women from all parts of Maine who, upon graduation, are equipped to return to their communities as professional nurses able to intelligently assist the physician and, in many other ways, help to raise the health level throughout the state. Physicians of Maine are in a unique position to augment both the quality and quantity of professional nurses in their local areas, by encouraging young women with an aptitude for nursing to seek admission to recognized schools of nursing within the state.

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## PHYSICAL THERAPY AT THE MAINE GENERAL HOSPITAL.

The Physical Therapy Department of the Maine General Hospital was opened in 1924. At the end of one year, occupying one room of the hospital and with one Therapist in charge, it showed an average daily patient attendance of 8. In 1949, occupying space on two floors of the hospital and with five Therapists and one Attendant on duty, it showed an average daily patient attendance of 42. Of this number 32 were in-patients and 10 out-patients. The facilities of the Department were utilized by all the professional services of the hospital, the Orthopedic Service making the largest number of referrals, the Neurological and Medical Services next in order. Fifty-seven individual physicians requested patient treatments and the total treatments given were 35,551.

The Therapists on duty are properly qualified and meet the requirements of the American Physical Therapy Association, the American Hospital and the American Medical Associations. In addition to carrying out the treatments prescribed by referring physicians, the personnel has a representative, usually the Chief Therapist, present at Weekly Orthopedic Ward Rounds, Weekly Orthopedic Clinics, Monthly Polio Clinics, Bimonthly Arthritic and Monthly Amputee Clinics. On these occasions ideal opportunities exist for discussion of treatments to be given and for arranging details of same. The Personnel also conduct classes for student nurses on the basic principles and practices of Physical Therapy.

In the early months of 1950 newly acquired space has made possible the consolidation and expansion of the Department: it is now located on one floor of the hospital and has ample connecting treatment rooms and a separate Remedial Exercise unit. The latter offers complete facilities for the rehabilitation of paraplegic, amputee, arthritic and poliomyelitis patients. The treatment rooms are equipped with the most modern units to meet full demands of Mechanotherapy, muscle analyses and evaluations, Thermotherapy, Electrotherapy, Actinotherapy, Hydrotherapy and peripheral vascular treatment.

In close integration with the Professional Services and with a well equipped and administered Occupational Therapy Department, the aims of the Physical Therapy Department are:

1. To shorten hospital stay.
2. To combat the cumulative effects of prolonged physical or mental illness.
3. To reduce residual physical disability.
4. To hasten convalescence.
5. To contribute to the return to normal living, economically and socially.

With the sustained and increased interests of the medical profession it is felt these objectives can be more and more ideally reached and the Physical Therapy Department of the hospital maintain itself as an invaluable contribution to the welfare of the community it serves.

Mary P. Clancy,
*Chief Physical Therapist,*
*Maine General Hospital.*

# CLINICO-PATHOLOGICAL EXERCISE

## Case presented at Maine General Hospital, Portland, Maine

Edited by Joseph E. Porter, M. D.

This 32-year-old white married female was admitted on the Dermatological Service with a chief plaint of ulcerating sores on chest, neck, face, and back of 18 months' duration. She had had acne ever since the age of 15, and 18 months prior to admission she noticed ulcerations on her chest. These sores usually began as a hard nodule which ruptured and exuded a yellowish-green pus, and left a residual ulcer, and finally a deforming scar. These were very painful until the pus was released. The lesions spread to her head, face, and back. Patient was about five months pregnant when the initial lesions appeared on her chest and had been treated prior to admission with Sulfadiazine and Streptomycin without any improvement. She had also received many types of ointments.

Review of Systems revealed that she had had a productive cough for four weeks and swelling of her right foot for one week and a weight loss over the past few months probably due to the marked anorexia. She was constipated and 1 plus nocturia. Periods had been irregular 3-6 weeks, lasting 7-14 days, and began at the age of twelve years.

Family History: She had one child 14 months old. Father was living and well. Mother died at age 66 of cerebral hemorrhage and had had diabetes. Four brothers and two sisters were living and well.

Past History: She had been operated on for strabismus and lidlag in childhood.

Physical examination reveals a slender, well-developed female in no acute distress. Ears, nose, and throat were normal except for slight injection of tonsils and some purulent mucus in the posterior pharynx. Skin revealed deep ulcers measuring up to .3 cm. and about 2-4 mm. deep, over her face, neck, upper chest, and along sternum and over back. Several of these lesions had greenish-yellow pus which could be easily expressed from the base of the ulcer. These lesions had a definite margin without erythema or inflammation surrounding the ulcerations, while the old healed sites appeared as non-indurated scars. These were not tender. Lungs and heart were within normal limits. Abdomen was normal. Genitalia normal. Extremities were normal except for a nontender swelling over the dorsum of the left foot. Reflexes were physiological.

Two days after admission the ulcers appeared to be drying up somewhat, and the margins did not appear active. A biopsy was taken and the report was acne with chronic inflammation. Ultra-violet light was given and lesions appeared somewhat better. Eight days after admission patient developed severe vomiting; the cough persisted. She was started on Penicillin and intra-derm Sulfa was applied to the lesions. Ten days after admission the vomiting continued and patient was given 500 c.c. whole blood because of her reduced hemoglobin. Another 500 c.c. of blood was given the following day.

Twelve days after admission a nose and throat consult was obtained because she had developed a very sore throat and hemoptysis. Patient also noted that she had an earache at various times. It was noted that she had a thickened drum on the left and some injection of the stapes. Hearing was good and equal. Examination of the throat revealed mucosa to have small petechiae on the gums and buccal surfaces. There were also small whitish ulcers on the buccal surfaces near the cuspids on the left. Tonsils were somewhat enlarged and injected, and pharynx was markedly hyperemic. There was bloody phlegm in the throat.

On her 13th hospital day she developed severe dyspnea and had further hemoptysis and was noted to be in acute pulmonary edema. She expired shortly after this was discovered.

Laboratory work: Admission urine: Sp. Gr.—1.005 with 40 mgs. Alb., 30-40 RBC. Culture from the lesions revealed Staph. aureus. Serologic tests for syphilis were negative. Blood count on admission as follows: Hb—56%, 8 gms., RBC—3,240,000 and WBC—7,500 with 78% polys, 4% Eosinophils, 17% Lymphocytes, and 1 Monocyte. Sinus X-rays were done and revealed the major accessory sinuses to be clear with no evidence of disease.

*Discussed by Dr. Otis F. Jillson:*

This patient was apparently in good health, until 15 months before admission. At this time, nodules appeared over the chest, which later broke down and ulcerated, and spread to the face, head, and back. Also of importance is that just before admission to the hospital, the patient had received sulfonamide therapy. The patient had been losing weight, which had been attributed to severe anorexia. For the past month she had a swelling over the right ankle. Finally, we know that the patient had irregular menses.

On physical examination, the findings were the skin eruption, the swelling over the right ankle, and injected tonsils.

Past history revealed acne during adolescence.

Patient was hopitalized and placed on routine acne therapy, but eight days after admission, severe vomiting occurred. For this, she was transfused on two consecutive days. Physical examination at this time revealed an injected pharynx, petechiae on the gums, and a few small ulcers on the buccal mucous membrane. There was bloody phlegm in the throat. Hemoptysis appeared suddenly, and this together with the productive cough continued until she finally went into acute pulmonary edema and died. Laboratory examination showed marked microcytic anemia. The urine was pathologic with a specific gravity of 1.005, with 30-40 red blood cells, 40 mgm. of albumin, and some bacteria.

This case is going to be discussed from the point of view of a dermatologist. Unlike the internist, the patient is first examined and then the history is taken. Tonight we will examine the patient through the use of Kodachrome slides. First we examine the patient from a distance, and we notice the location of the lesions. They are chiefly found over the entire back, face, and upper chest. They are bilateral, but not symmetrical. Next, we approach the patient closer, and look for configurations, as for example, the grouping of lesions as found in syphilis, annular lesions found in sarcoid, linear lesions suggesting lichen planus, etc. On these slides, no especial configuration can be discerned.

Now we approach the patient as closely as possible, and through vision and palpation determine the primary lesions. It is on these basic morphologic entities that the differential diagnosis is based. In this case, the primary lesion is a nodule, this being a firm elevated lesion of over 3 mm. in diameter. Forgetting the rarities, the important nodular lesions to be considered in this case are as follows: acne, syphilis, tuberculosis, sarcoid, leprosy, cancer — primary and secondary —, drug eruptions, lymphomas, and periarteritis nodosa. These conditions will be discussed.

First of all — acne: There is a condition called pyoderma facialis. This will be excluded by the fact that it is limited to the face. Next, we have acne conglobata. This condition is almost entirely limited to the male sex, and although the lesions may occur anywhere, they are found chiefly in the region of the buttocks and the lower extremities. Also, the typical scars of Lange are not observed or described in this case. As for the rather common acne indurata, if this is to be considered, the question should be raised of why is it making its apearance for the first time in a woman aged 32. This disease must be considered from two points of view — that of the invading organism, and the resistance of the patient. Here penicillin, sulfonamides, and streptomycin were used without effect. Laboratory examination could have revealed if the invading staphylococcus aureus were susceptible to these drugs. From the point of view of resistance, we must consider the diagnosis of pyoderma gangrenosa. This condition is usually seen in debilitated patients with ulcerative colitis. There are large gangrenous ulcers. Measles, for instance, will change a positive tuberculin test to a negative one, and during this state of anergy, miliary tuberculosis can develop. The importance of blood sugar in pyodermic lesions is well known. Thus, if we are to think in terms of acne indurata, we must investigate and find the underlying debilitating disease.

Syphilis: If this is syphilis, is it secondary or tertiary? There are three things we can say about secondary syphilis that are usually true. It does not itch, there are no vesicles, and the blood test is always positive. Here the serology was negative. For a diagnosis of tertiary syphilis, there are ten important criteria that should be fulfilled, such as few lesions, unilateral, indurated, punched-out ulcers, healing in the center with peripheral spreading, border of hyperpigmentation, etc. Thus, we rule out this condition.

Tuberculosis: Once again, what type? Primary or hematogenous? Primary tuberculosis in this case would bring up the diagnosis of lupus vulgaris or scrofuloderma. Lupus vulgaris is a chronic, slowly progressive disease frequently beginning in childhood. To make a diagnosis of scrofuloderma, one must demonstrate tuberculosis of the underlying structures, i.e., tuberculosis of the bones or glands. It is difficult in this case to rule out the hematogenous form of tuberculosis that is known as papulonecrotic tuberculosis, except on the size of the lesions. The pathology was not consistent with this, but I cannot completely rule out this diagnosis.

Sarcoid: Sarcoid can produce almost any known picture upon the skin, but since it is a systemic disease, it would be helpful to know if the hilar nodes were enlarged, if there were cystic lesions in the carpal bones, and alteration in the serum proteins. These were not mentioned, therefore I cannot make a diagnosis of sarcoid.

Leprosy: To acquire this disease you must live where the disease may be acquired. As far as we know, the patient never left Maine.

Cancer: The duration is too long, but with lesions on the scalp, two primary foci should be considered — cancer of the breast, and cancer of the kidneys. The latter has been known on more than one occasion to produce solitary lesions on the scalp which clinically resemble a sebaceous cyst.

Drugs: Iodides or bromides could produce this picture in its entirety. Even after removal of these drugs, the patient may go on and die. We have no history of their intake.

Lymphomas: Here we need bone marrow, blood studies, liver biopsy, and X-ray of the long bones.

Periarteritis nodosa: This I consider the most likely diagnosis for the following reasons: First, there was an exacerbation of the eruption following the use of sulfonamides. Rich has adequately demonstrated that through the process of allergy, sulfonamides can aggravate or produce this disease. Second, the patient had kidney disease. The two most common internal organs involved in this disease are the kidney and the heart. There was a history of the sudden appearance of hemoptysis. This could be explained on the basis of a ruptured aneurysm. Clinically, some of the ulcers were not surrounded by inflammation, suggesting a vascular rather than a bacterial cause. The disease is more common in females. There was a swelling over the right foot that could be consistent with this disease.

In conclusion, my initial diagnosis is periarteritis nodosa. I cannot rule out tuberculosis, and there is a history of acne.

*Dr. Leon Babalian:* I want to congratulate Dr. Jillson on his excellent discussion, and the accuracy of his diagnosis. Those, who like myself, saw the patient, were struck by the extent of her lesions of Acne Indurata with abscesses, sinuses, and disfiguring keloids on her face, neck, chest and back during the last six years of her life. The last year the suppurated lesions *conglomerated* in large undermining abscesses giving the picture described as Acne Conglobata. What was unusual in this case was the appearance and the importance on top of these lesions of round, dark, sloughing spots of gangrena, a complication not rare, according to some, in debiliated patients with Acne Conglobata. Finally, the post mortem examination showed the existence of lesions of Periarterites Nodosa, findings which fit with the diagnosis of Dr. Jillson.

In fact these three kinds of lesions (Acne Conglobata, Gangrena of the skin and Periarteritis Nodosa) they all represent phenomena of repeated sensitization. As it is seen in Arthus Phenomenon, each new sensitization provokes a reaction of increasing severity advancing to necrosis.

Many antigens, bacterial or not, can be the cause of this super-sensitization. One particular cause comes to mind in this case. It is tuberculosis, especially Tuberculosis Colliquativa. It is interesting to note that several authors abroad have related this form of acne to filterable form of tuberculosis.

*Dr. Joseph Porter:* The final diagnosis in this case was Periarteritis Nodosa. The immediate cause of death was bronchopneumonia. There is an inflammatory reaction in the arteries, varying in degree and in the stage. The process is very diffuse involving the smaller arteries in the myocardium, epicardium, and pericardium, peribronchial, submucosa of intestine, renal, splenic, and cerebral. The vessel walls are thicker than normal. There is fibroblastic proliferation occurring in many, as well as an infiltrate of lymphocytes and neutrophils in the wall, frequently most pronounced, in the adventitial coat. In some instances, the lumens are occluded by fibrin thrombi in which there are a few leucocytes, and there are instances in the spleen and kidneys where recanalization in older thrombi has occurred.

There were no so called "wire loop lesions," in the kidneys, and no L. E. cells were seen in the marrow or other tissues.

In several sections of the bronchus and trachea, foci of necrosis suggestive of caseation necrosis were seen but no acid fast organisms could be demonstrated in such lesions.

There were multiple sections made of the skin lesions and these revealed an inflammatory process in various stages of healing. There were cysts of varying size lined by squamous epithelium and the lumens were filled with keratin and leucocytes — many of these cysts extend to the surface. A few foreign body giant cells are seen in the surrounding tissue.

In view of the work of Rich and Gregory,[1] one might wonder if this patient's terminal stage might not be the result of extensive use of one of the sulfa drugs.

1. Rich, A. R., and Gregory, J. E.: The Experimental Demonstration That Periarteritis Nodosa Is a Manifestation of Hypersensitivity. *Bulletin*, Johns Hopkins Hosp., Vol. 72 pp. 65-83, 1943.

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Mass mobile unit X-ray surveys have imposed a new dual obligation upon the general practitioner. Determination of the activity or status of the frankly tuberculous lesion, and differentiation of pulmonary tuberculosis from other intra-thoracic disease found in mobile X-ray surveys are now almost invariably responsibilities of the family foctor. Coupled with these duties, there still remains the necessity for early, accurate diagnosis of tuberculosis of any case seen in practice. — Edwin J. Simons, M. D., and Edwin G. Knight, M. D., *Journal-Lancet*, April, 1950.

# ADMINISTRATIVE

## THE CHANGING ORDER OF HOSPITAL CARE*

This topic was selected because in preparing material for National Hospital Day here at the Maine General Hospital we discovered a number of old photographs of the hospital dating as far back as 1885. We were fascinated by these photographs. Not only were the pictures themselves extremely interesting, but they suggested the great change that has taken place in hospital care since this hospital was organized in 1868. These changes reflect the progress that you medical men have made.

Subconsciously, I was aware of this progress, aware of the great advances that have been made, but in going over those photos I suddenly realized that I was so close to the forest that I had not seen the trees. I wonder if perhaps we are not all in that same situation.

In making up an exhibit with the photographs, we followed an "old and new" pattern. The exhibit shows graphically the progress that has been made in six different fields of medicine and hospital care. Using some of these subjects I would like briefly to highlight the progress that has been made here at Maine General Hospital.

Ward A in 1885 had 20 beds arranged in two facing lines in one large open room heated by four corner fireplaces and poorly ventilated. Today, now known as Division A, this unit has 32 beds within the same floor area, divided into groups of four by partitions and each bed equipped with cubicle curtains. Modern heating and ventilating protect the patients, and the plan of grouping allows segregation of patients in accordance with their condition, degree of illness and the type of specialized nursing care required.

You will note that I referred to the present unit as a Division. We now use this term instead of Ward and refer to the service thereon as Standard Service. This new terminology removes the stigma of charity from those patients who in increasing number provide for payment of their hospital bills through various forms of prepaid insurance.

In the field of X-ray, the Maine General Hospital has been a leader. In 1899, a bare three years after Roentgen discovered the X-ray in Germany, an X-ray tube made at Bowdoin College was put into service at this hospital. X-ray service has been available here since that time.

Last year a staff of 3 doctors, 11 technicians and 3 student technicians using some $60,000 worth of equipment performed over 20,000 treatments and diagnostic examinations. These included such highly specialized examinations as bronchograms, myelograms, encephalograms and ventriculograms. Heart studies are going to be carried further in the near future with the proposed development of a cardiac catheterization laboratory in the X-ray Department.

The single tube microscope used in 1875 symbolizes the fact that laboratory services prior to 1900 were extremely limited, limited to small magnifications in making analyses of blood and urine. The binocular microscope of today permits great accuracy in a large and varied number of applications in the clinical and pathological laboratories. The Spectrophotometer, added to our laboratory in January of this year, has still unknown potentialities in chemical determinations. This machine is now being used extensively for total blood volume determinations and is only one of the many pieces of laboratory equipment valued at more than $40,000.

Other highly specialized services carried out in our laboratory by the 2 pathologists, 3 residents, 22 technicians and 8 student technicians include cytologic examinations, some 6,000 of them in 1949; marrow aspirations; RH typing; and rapid pregnancy tests. Twenty-four hour tissue diagnostic service has been available in the hospital laboratory since 1942. While the frozen section technique for immediate diagnosis of tissue removed at operation is available in most of the larger hospitals in the state, it is a procedure which is not available in many of the smaller hospitals because of the lack of professional personnel to give an opinion on such tissues. The Laboratory is performing more and more of this type of examination, involving professional opinion, and is receiving tissues by messenger service from other hospitals. While this is admittedly not ideal, it is a service which is available to the surgeon, and probably the short delay necessary in transporting the tissue to the Laboratory is not deleterious to the patient. Addition of a Ph.D. chemist in the Laboratory at an early date will enable the hospital to make radioisotopes vailable for medical use here. The Geiger-Mueller Counter and other related equipment have already been obtained for this purpose.

The tremendous advance in surgery since the days of the surgical amphitheatre as pictured in 1885 is attributed to a large extent to the advancement in the

* Remarks of Donald M. Rosenberger, Director, Maine General Hospital, addressed to the Medical Alumni Association at the Annual Reunion, May 12, 1950.

methods of anesthesia. Interestingly enough in the field of anesthesia, the department here at Maine General has recently been selected as one of three in the country to carry forward the clinical investigation of a new ultra-short acting barbituric acid derivative for anesthesia as a possible substitute for pentothal sodium.

In addition to offering a selection of 25 different highly specialized types and combinations of medical anesthesia, our department in coöperation with the Maine Society of Anesthesiologists is offering post-graduate instruction to physicians. This program covers the subjects of anesthesia, blood transfusion therapy and diagnostic and therapeutic blocks.

Describing the extensive development of medical and surgical services and specialties here at the Maine General Hospital would take hours. I will call your attention to only a few of the more outstanding ones:

Extensive diagnostic and treatment services in internal medicine.

A complete Neurosurgical Service—the only one in Maine.

Thoracic Surgery.
Advanced Gynecological Services.
Specialized Urological Procedures.
Extensive Orthopedic Services.
Psychiatry and Electroshock Therapy.
A fully developed Pediatric Division.
Complete Ear, Nose and Throat Service.
Dermatological Service.

17 Out-Patient Clinics, including a Tumor Clinic, an Arthritic Clinic and a Polio Clinic.

Physical Therapy.
Occupational Therapy.
Medical Social Service.
An outstanding School of Nursing.

The highly specialized procedures of medical and surgical specialties and the diagnostic, rehabilitative and educational programs require of nursing service a far higher level of understanding, recognition of symptoms of changes and technical performance. The nurses of an earlier day could give their undivided attention to the comfort of the patient. The nurse today must understand the intricate mechanisms of negative pressure, or suction as it is commonly called, the operation of numerous but mute mechanical devices, the mathematics and the manifestations of chemotherapy, and from another and entirely different but equally important consideration, she must understand the implications of the present biological revolution which has resulted in the recognition of geriatrics as a specialty.

It is the function of the hospital administration in the field of nursing to be aware of both the human and the technical requirements and to establish and maintain proper balances between nursing care and nursing education on the one hand and general duty nursing and highly specialized administrative nursing on the other hand, just as it is incumbent upon organized medicine and hospitals to constantly re-establish and maintain a proper balance between the general practice of medicine and the pursuit of medical specialties. In many respects the hospital symbolizes and exerts a positive force as a balance wheel in the growing complexity of medical developments and nursing care.

At this point you are undoubtedly asking the question: What is this leading up to? You are quite justified in asking such a question. The answer is that I am leading up to what I think is the most significant achievement in the medical history and in the distribution of medical care in the State of Maine. All of the advancement and progress that I have briefly characterized points to one thing, the development of a Medical Center for and in Maine at the Maine General Hospital.

The extent of medical, surgical, diagnostic and rehabilitative services, together with the extent and nature of nursing and other professional and technical services, are not in themselves sufficient to distinguish a hospital from a medical center. A medical center such as Maine General Hospital is all of these things together with its graduate medical education, medical investigation and research, nursing education, and vocational education programs within the hospital, plus the effective and comprehensive program of preventive and public health medicine including health education services for patients, their relatives, and the general public, and the extension of hospital services on the administrative and technical level, the Staff or professional level, and the Board or policy level in all health activities throughout the area.

The medical alumni will be particularly interested in the fact that the Maine General Hospital Staff, as a part of its graduate medical education program, now offers a total of 117 educational opportunities at the hospital each week in the form of rounds, seminars, clinics, conferences and medical meetings, and that the substantial volume of clinical investigation and research carried out in connection therewith by the 177 Staff members and 26 house officers has already been and continues to be reported in the medical literature. All of the educational sessions are open to every member of the medical profession who wishes to avail himself of these opportunities.

Mr. Robert Braun, president of the Board of Directors of this hospital, set forth two words in his description of our medical center, "logical" and "inevitable." The reason that Maine General is the logical location in Maine is obvious to all of us. It now has the largest assembly of medical manpower, surgical facilities, specialty and clinical services of

any community in the State. It logically follows that these conditions provide the best foundation for further development of a medical center from the point of view of cost as well as efficient treatment that Maine has to offer.

Its inevitability is equally obvious to you medical men who are a part of the tremendous advances that have been made in medicine within the past few years and who understand the urgent necessities for providing the most competent medical care for the largest number of people.

Smaller communities are becoming more and more dependent on the specialized facilities of the larger ones. The extensive development of medical and surgical diagnostic services and specialties here at the Maine General Hospital, strengthened in 1948 by the joining of forces with the Children's Hospital, offers within the confines of the State of Maine a comprehensive medical center program which has eliminated in large part the need for the referral of a number of types of specialty cases to other medical centers out of the State.

The primary objective of a medical center program must be that of an identically high standard of general and specialized services for both free and private patients. Only by complete utilization of the available facilities by private and staff patients alike can medical center services be developed to the fullest measure. Thus if free patients requiring specialized care are to be sent to the medical center from the entire State, it follows medically and economically that the total health of the entire population of the State will be bettered if the private patients requiring specialized services be referred to the same medical center also whenever it is to the advantage of the patient to do so. When referring free patients, doctors are requested to follow the procedure, and assist in procuring, Town Authorizations from the Selectmen in advance of referring free patients to the hospital for elective care.

There exists within the immediate realm of possibility of extension of medical services the development and refinement of a program of multi-specialty examinations on a group consultation basis for private patients which will recognize the proper medical and economic relationships between the general practitioner and the specialist on one hand, and the medical profession and the patient on the other hand. At the request of the officers of the Medical Alumni Association and with the full endorsement of the Board of Directors of the hospital, the Executive Committee of the Medical Staff of your hospital has already taken steps to set up a committee to investigate the matter of group consultation service and to propose a method of action.

I want to conclude my remarks by asking you individually and collectively to crystallize your ideas regarding our Medical Center Program. We would like expressions and suggestions from every one of you.

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## MAINE GENERAL HOSPITAL

### Clinic Schedule

*Arthritic Clinic* — (Third Monday of month) 9:00 a. m., Monday.

*Cardiac Clinic* — (Adults) 11:00 a. m., Tuesday.

*Cardiac Clinic* — (Children — Junior League) 11:00 a. m., Tuesday.

*Convulsive Clinic* — (Second Thursday of month) 2:00 p. m., Thursday.

*Crippled Children's Clinic* — (Second Monday of month) 9:00 a. m., Monday.

*Crippled Children's Clinic* — (Cardiac) 9:00 a. m., Friday.

*Diabetic Clinic* — Wednesday, 11:00 a. m.

*Gynecological Clinic* — Wednesday, 2:00 p. m.

*Medical Clinic* — Daily, Monday through Friday (By appointment only).

*Neurosurgical Clinic* — (First and third Thursdays of month) 2:00 p. m., Thursday.

*Orthopedic Clinic* — (Diagnostic Only) Tuesday, 9:00 a. m.

*Orthopedic Clinic* — (Cast work and check-ups) Wednesday, 2:00 p. m.

*Orthopedic Clinic* — Check-ups and Cast work) Thursday, 9:00 a. m.

*Pediatric Clinic* — Out Patient Department, 8:00 a. m., Tuesday.

*Polio Clinic* — (First Monday of month) Monday, 9:00 a. m.

*Prenatal Clinic* — 8:30 a. m., Wednesday.

*Prenatal Clinic* — 2:00 p. m., Friday.

*Psychiatric Clinic* — (By appointment with Out-Patient Department only) Friday, 2:00 p. m.

*Surgical Clinic* — Monday, Tuesday and Thursday, 2:00 p. m.

*Tumor Clinic* — Thursday, 10:00 a. m.

*Urological Clinic* — Wednesday, 11:00 a. m.

# EDITORIAL

## A. M. A. Review of Medical Procurement and Civil Defense Situation

It seems only fitting that the Editorial Page in this issue of the JOURNAL should be devoted to the following information received from Joseph S. Lawrence, M. D., Director, Washington Office, American Medical Association, which is of vital importance to every member of the Association.

### A. M. A. Council Reviews Medical Procurement

The entire emergency medical situation was reviewed by AMA's *Council on National Emergency Medical Service,* meeting in Washington with top military and civil defense medical officials. Sessions were held morning and afternoon on Saturday and Sunday.

After listening to Army, Navy and Air Force outline their requirements for more medical officers, the Council:

1. Declared that more doctors are needed in the armed services, and that the initial needs must be supplied by *"men who were permitted to pursue their medical education and otherwise deferred during World War II,"* principally former members of the Army's A. S. T. P. and Navy's V-12. Military officials made it plain that present demands could be met by men from these groups who were educated at government expense but have not served on active duty. Regarding these men, Dr. Elmer L. Henderson, AMA president, declared: "The American Medical Association is determined that the men in the Armed Services will have adequate medical care even if legislation should prove necessary to insure this."

2. Discussed the possibility of legislation *making it legally possible to call up this group of men without their consent.*

3. Agreed to further publicize the *bonus pay* provision for medical volunteers. Under this law, medical officers who volunteer receive an *additional $100 per month;* this is not allowed if the men are called up on mandatory orders. Volunteers also retain their "separation rank."

### Eight States Report to Council on Civil Defense Situation

As part of the Washington meetings, the Council held the first of a series of regional conferences on medical aspects of *civil defense.* Representatives from eight seaboard states and the District of Columbia made reports.

Represented also were the military forces, PHS, VA, Selective Service and Red Cross, as well as American College of Radiology, American Dental Association, American Hospital Association, American Pharmaceutical Association and American Veterinary Medical Association. The Council noted that full-time civil defense directors have been appointed in all these states. In some states defense planning was reported as in preliminary stages. However, most reported remarkable progress, with the programs in charge of aggresive and effective civil defense organizations. *All reported that necesary emergency legislation is on the statute books or is before legislatures.* The Council chairman, Dr. James C. Sargent, said, "All of these states now appear to be accelerating their planning. There are many complications and difficulties, but these are being rapidly overcome."

## COUNTY SOCIETIES

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President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

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Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Cumberland

A regular meeting of the Cumberland County Medical Society was held on June 8, 1950, in the classroom of the Maine General Hospital. The dinner was preceded by a Clinic, conducted by the Resident and Attending Staff of the Maine General Hospital and was followed by a business meeting.

Drs. Jackson S. Pogue, George O. Cummings, Jr., and Edward M. Cook, Jr., were elected to active membership.

A committee was elected to draw up resolutions on the death of Dr. Albert F. Stuart, consisting of Drs. Eugene H. Drake, Thomas A. Foster and Langdon T. Thaxter.

Resolutions on Dr. Harold J. Everett, submitted by Drs. Theodore M. Stevens, Thomas A. Foster and Theodore C. Bramhall, were read and approved.

The formation of a Woman's Auxiliary to the Cumberland County Society was unanimously approved.

A letter from the Greater Portland Chamber of Commerce was read, inviting the Cumberland County Medical Society and/or its members to become members of the Chamber. It was moved and seconded that the Secretary look into the possibilities of this proposal.

The American Academy of Pediatrics Committee on Fetus and Newborn was unanimously approved.

Dr. Elton R. Blaisdell discussed the Diabetic Detection Drive slated for November, 1950. It was suggested and agreed that Dr. Blaisdell and his special committee on diabetes accept the responsibility of obtaining speakers on diabetes for the October meeting.

RALF MARTIN, M. D.,
*Secretary.*

## Hancock

A special business meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, on July 12, 1950. There were 13 members and two guests present. A motion was made, seconded and passed that the society have a social meeting at the house of Dr. Burgess on August 5. Dr. Joseph H. Hanson of Bar Harbor and Dr. Robert F. Russell of Penobscot were elected new members of the society.

Dr. M. A. Torrey gave a detailed report to the society on the Maine Civilian Defense Program. Considerable discussion of this matter followed. A motion was made that a committee composed of Drs. R. E. Weymouth, L. C. Burgess, and M. A. Torrey be chosen to organize the county on a local level for civilian defense and report to the society subsequently on their decisions. The motion was seconded and passed unanimously. There being no program, the meeting was adjourned at 9:45 p m.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## New Members

### Hancock

*Joseph H. Hanson, M. D.,* Bar Harbor, Maine.
*Robert F. Russell, M. D.,* Penobscot, Maine.



## Constipation in the Aged...

The commonly encountered constipation of the older age group may result from reduced activity, lack of appetite for bulk-producing foods and inadequate ingestion of fluids.

By providing hydrophilic "smoothage" and gently distending bulk, Metamucil encourages normal physiologic evacuation without straining or irritation.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

**METAMUCIL®** is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. G. D. Searle & Co., Chicago 80, Illinois.

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

## Woman's Auxiliary to the Maine Medical Association

### Officers
### 1950-1951

President, Mrs. Edward W. Holland, Springvale.
President-elect, Mrs. Clyde I. Swett, Island Falls.
Vice President, Mrs. Martyn A. Vickers, Bangor.
Treasurer, Mrs. Henry C. Thacher, Auburn.
Recording Secretary, Mrs. Harold E. Small, Augusta.
Corresponding Secretary, Mrs. Stephen A. Cobb, Sanford.
Councilors:

District 1—Mrs. Edward W. Holland, Springvale.
Mrs. Richard S. Hawkes, Portland.

District 2—Mrs. Ralph A. Goodwin, Auburn.
Mrs. Maynard B. Colley, Wilton.

District 4—Mrs. Harold E. Small, Augusta.

District 5—Mrs. Norman E. Cobb, Calais.

District 6—Mrs. Penry L. B. Ebbett, Houlton.
Mrs. Linus J. Stitham, Dover-Foxcroft.

Plans are being formulated by the Committee Chairman, Medical Advisors and Woman's Auxiliary Officers for the year's activities. A newsletter will be sent to the Counties in August which we hope will be of help as your county meetings will be starting for the current year. Good luck to you and be sure to attend the Fall Session.

Mrs. Edward W. Holland,
*President.*

## HOSPITAL STAFF MEETINGS
Open to the Profession

| CITY | HOSPITAL | DATE |
|---|---|---|
| Augusta | Augusta General Hospital | 1st Wednesday |
| Bangor | Eastern Maine General | 2nd Tuesday |
| Bath | Bath Memorial Hospital | 1st Tuesday |
| Belfast | Waldo County | 2nd Friday |
| Biddeford | Webber Hospital | 2nd Thursday |
| Boothbay Harbor | St. Andrew's Hospital | 4th Tuesday |
| Caribou | Cary Memorial | 1st Wednesday |
| Damariscotta | Miles Memorial | 2nd Thursday |
| Farmington | Franklin County Memorial | 2nd Monday |
| Greenville | Charles Dean Hospital | 2nd Wednesday |
| Hartland | Scott Webb Memorial Hospital | 1st Wednesday |
| Lewiston | Central Maine General | 1st Monday |
| | St. Mary's General | 2nd Monday |
| Portland | Maine Eye and Ear Infirmary | 1st Tuesday |
| | Maine General | 2nd Friday |
| | Mercy | 3rd Thursday |
| Presque Isle | Presque Isle General | 1st and 3rd Tuesdays |
| Rockland | Knox County General | 1st Monday |
| Rumford | Rumford Community | 4th Wednesday |
| Sanford | Goodall Memorial | 2nd Monday |
| Waterville | Sisters | 2nd Tuesday |
| | Thayer | Every Thursday |

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

# NEWS AND NOTES

## Opening for General Practitioner

Lisbon, Maine: Lisbon is 8 miles from Lewiston and 12 miles from Brunswick, with a population of approximately 1,500. There are two mills; namely, Bonafide Mill and Farnsworth, both employing about 300 people.

Request is that the doctor be a General Practitioner and reside in the immediate Town of Lisbon.

For further information write to Miss Madeleine Leblond, 18 Park Street, Lisbon, Maine.

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## Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

### Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

### Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

### Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

### Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

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## Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

*Portland* — Health and Welfare Department, 178 Middle Street. Every Tuesday.

*Lewiston* — Out-Patient Department, Central Maine General Hospital. Every Monday.

*Augusta* — Bureau of Health, Division of Mental Health. By Appointment.

*Waterville* — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

*Bangor* — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main

office of the Division of Mental Health — State House, Augusta.

*Patients are seen by appointment only.* Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

## Pediatric Institute for General Practitioners

The second annual Pediatric Institute for the General Practitioner will be on Friday, September 28, 1950, at the Central Maine General Hospital in Lewiston.

The Institute will be divided into a morning and afternoon session. The program will include a discussion of the following topics which we believe are of special interest to the general practitioner:

(1) Kidney diseases in childhood.
(2) Recognition and treatment of the common psychiatric disorders of childhood.
(3) Care of the newborn infant.

Individual invitations together with a complete outline of the full program of the Institute, listing the speakers and their subjects, will be forwarded in the near future.

ELLA LANGER, *M. D., Director,*
*Division of Maternal and Child Health.*

## Fifteenth Annual Assembly International College of Surgeons

The Fifteenth Annual Assembly of the United States Chapter of the International College of Surgeons will be held in Cleveland, Ohio, October 31 to November 3, with headquarters at the Cleveland Hotel.

Surgical clinics will be held in several Cleveland hospitals on Monday, October 30. All scientific sessions will be held at the Cleveland Public Auditorium, 9:00 a. m. to 5:00 p. m. Tuesday through Friday. A most excellent program has been arranged at which time some of the most prominent surgeons of America, and some foreign speakers, will discuss the current contemporary surgical scene.

Through the courtesy of Smith, Kline and French Laboratories, a fine colored television program of surgical procedures, originating from the St. Vincent's Charity Hospital, Cleveland, will be shown daily in the auditorium from 9:00 a. m., to 1:00 p. m. Motion pictures will also be presented each day depicting many of the recent advances in surgery and surgical technique.

One of the highlights of the meeting will be the annual banquet at the Statler Hotel on Thursday evening when America's great surgeon, Dr. Frank Lahey of Boston, will talk on "Some of the Recent Advances in Surgery." Dr. Elmer Henderson, President of the American Medical Association, will deliver an address on "The Importance of International Co-operation in Surgery."

Reservations may be secured by writing to the Committee on Hotels, International College of Surgeons, 511 Terminal Tower, Cleveland 13, Ohio. Preliminary programs may be obtained from the central office, 1516 Lake Shore Drive, Chicago 10.

## State of Maine
## Board of Registration of Medicine

Adam P. Leighton, M. D., 192 State Street, Portland, Maine, Secretary.

Physicians licensed in the State of Maine—July 12, 1950:

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Dr. Z. Alexander Aarons, Devereux Schools, Devon, Pa.
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Dr. Harry A. Bliss, 4967 Henry Hudson Parkway, Riverdale 63, N. Y.
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Dr. Horatio P. Wakefield, Rockwood Road, Box 10, Norfolk, Mass.
Dr. Philip D. Woodbridge, The Reading Hospital, Reading, Pa.

### Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

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### Neurosurgical and Convulsive Clinics at the Maine General Hospital

Neurological and Neurosurgical Clinics, both therapeutic and diagnostic, are held at the Maine General Hospital, Portland, on the 1st and 3rd Thursday of each month at 2.00 P. M. The convulsive clinic, designated for the diagnosis and treatment of epilepsy and other convulsive disorders, is held at the same time on the 2nd Thursday of each month.

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# AUREOMYCIN IN OCULAR SYPHILIS

James E. Poulin, M. D., Sisters Hospital, Waterville, Maine

The medical literature on aureomycin is increasing with such rapidity that it is almost impossible for the average clinician to keep abreast with this indispensable antibiotic. This versatile and potent remedy of low toxicity is of proven value against a wide variety of infections, however the literature available makes but little mention of the usefulness of this drug in the treatment of syphilis. In the early stages in the development of this drug the need for it in serious infections, for which other antibiotics were not effective, made it impossible to allocate the use of it in such conditions as syphilis. Thus, the scarcity of this drug and its prohibitive cost are possible reasons why more experimental work has not been carried out to date. Aureomycin has been resorted to most often when the patient had become resistant to penicillin and this same reason prompted the author to test its effectiveness against ocular syphilis.

The incident of ocular syphilis varies in different parts of the country, however the overall picture reveals that syphilis accounts for nearly 10% of the cases of blindness in this country. All data on the subject indicates without question the seriousness of syphilis as an etiologic factor in eye disease. Any structure of the eye may reveal manifestations of syphilis and in about 50% of the cases the condition is bilateral. The localization of the lesion in the eye depends upon such factors as predisposition of the tissue and immunologic reaction rather than upon special strains of the organism. Interstitial keratitis is a manifestation of congenital syphilis in nearly all cases and only in rare instances does it occur as an acquired condition. There is yet no satisfactory explanation as to why the cornea of children with congenital syphilis is more predisposed to interstitial keratitis than in cases of acquired syphilis. The eye manifestations of the acquired type are more commonly seen as ocular muscle paralysis, iritis, choroiditis, retinitis and optic neuritis.

The short series of cases which are described in this article represent less than one-half of the total number of cases treated with this new antibiotic. They are not unusual cases but they are presented solely because they responded to aureomycin after antiluetic therapy had proved of no avail.

Trauma appears to be a prominent factor in the localization of syphilis in the eye and this is especially true in respect to corneal injuries which often precipitate the appearance of interstitial keratitis. Report of Case No. I, M. C., age 19, gave a history of having traumatized the cornea of his right eye and shortly thereafter symptoms which characterize the

onset of interstitial keratitis became manifested by redness of the conjunctiva, lacrimation, and intense photophobia as well as the typical involvement of the cornea. This picture, together with a positive serology, definitely established the diagnosis. As in all cases of active syphilitic ocular involvement, local treatment was instituted; not that it was expected to cure or arrest the condition but with the possibility that it might shorten the duration and prevent complications. History obtained from the patient at this time revealed that he had already received antiluetic therapy consisting of neoarsphenamine and bismuth compounds for one year previous. Thus, it was felt that penicillin was now the drug of choice and subsequently this patient was put upon an intensive course of penicillin. He unfortunately soon developed an allergic sensitivity to this drug. During this period the eye condition became very much worse and the patient rapidly lost vision in the involved eye. It was because of the failure of penicillin that aureomycin was then attempted. This drug was given in 250 mg. doses for a period of ten consecutive days and shortly after its administration the patient began to show dramatic signs of improvement. The healing process itself was far more rapid than is usually expected in this type of infection. The severe symptoms quickly subsided and the cornea cleared around the periphery within ten days and only a small central opacity remained.

Case No. II, B. B., age 28. Syphilitic iritis for some unknown reason seems to occur more frequently in males than in females and it is usually a manifestation of the secondary stage of the disease. The inflammation itself is characterized by marked pericorneal injection, deposits on the posterior cornea, and exudates in the pupilary space. The iris itself is congested and swollen and it has a very cloudy appearance. In about one-half of the cases both eyes are involved. This was the clinical picture which Case No. II, a 28-year-old male, presented. This man gave a history of having received two years previous antisyphilitic treatment over the prescribed length of time. In addition to local treatment the patient received an intensive course of penicillin therapy consisting of the administration of 600,000 units daily for ten days. During this period he was hospitalized and fever therapy was instituted. This combined therapy appeared to quiet the acute inflammatory process and the patient was discharged from the hospital in an improved condition. One week later, however, he returned with a recurrence of his disease and at this time the principal symptoms; headache, photophobia, and lacrimation were more intense than before. Thus the patient, who was completely incapacitated was given aureomycin by mouth in 250 mg. doses four times a day for ten consecutive days. At the end of which time both eyes showed remarkable improvement under this antibiotic and corresponding improvement of vision likewise occurred. Since that time this patient has been closely followed and there has been no recurrence of the disease.

The third case involved concerns a woman, 36 years of age, who presented a unilateral acute iritis. This obviously was syphilitic in orgin as there was an accompanying typical skin rash indicating the early secondary stages of the disease, as well as a positive Hinton. This patient had received neither penicillin therapy nor any other type of antiluetic therapy. Aureomycin was again tried and at the end of two weeks the merit of the drug had proven itself in that the acute phase of the iritis was completely terminated and, under local treatment, the eye soon became completely quiescent. It is interesting to note, however, that in spite of this favorable termination of the ocular involvement, the Hinton remained positive.

Syphilis involves the choroid in about 15% of the cases and it occurs far more commonly in congenital syphilis than it does in the acquired type. Oftentimes it is impossible to distinguish between the types because there are no characteristic changes which may differentiate one type from the other. The diagnosis depends upon other manifestations of the disease itself. The choroidal involvement may occur during the very early months of the infection where its appearance in the eye is manifested by small diffuse grayish changes in the choroid. These inflammatory areas are changed into speck-like areas of atrophy when treatment is instituted. This condition may occur in one eye alone but more often it is bilateral. It is characterized by rather sudden loss of vision. clouding of the vitreous, and sometimes slight edema of the edges of the optic disc. A scotoma is usually found in the visual field and the size and appearance of the same, depends of course, upon the location and extent of the lesion. Some cases respond quite well to antiluetic therapy while in other cases the condition may persist in spite of luetic therapy and produce atrophy and sclerosis of the vessels in the areas of the choroid involved.

Case No. IV was an 18-year-old girl who complained of loss of vision in one eye. The examination revealed a characteristic lesion involving the choroid. This particular lesion was of a dirty, yellow color and showed a rather marked proliferation of pigment which is often characteristic of the lesion and is the result of a secondary involvement of the retina. A ring scotoma was found in the visual field corresponding in size and appearance to the lesion. Tuberculosis, which must always be considered in these cases, was ruled out and a positive Hinton established the diagnosis of a syphilitic choroiditis. Aureomycin in the customary dose, as well as neoarsphenamine and bismuth therapy were immediately instituted. The patient had no other manifestations of the disease and was quite unaware of the existence of the

same. Once again the ocular complications of this disease appeared to have been arrested through the action of this new antibiotic aureomycin. The lesion itself did not change in size during this period but healing became evident by the appearance of connective tissue fibers, and by the disappearance of the edema of the surrounding tissue. One month following the administration of this antibiotic, the lesion showed very definite evidence of complete healing, and no additional lesions could be detected in either eye. The vision itself was remarkably improved but there still remained a small scotoma corresponding to the original site of the lesion. Again, I attribute this rapid healing to aureomycin and not to the small amount of neoarsphenamine that could be administered in one month's time. It was felt, however, that neoarsphenamine and bismuth should be given the patient.

I have had no occasion to use this antibiotic in syphilitic optic neuritis. I do not feel that any results could possibly have been obtained as this is a manifestation of neurosyphilis and the optic nerve has undergone degeneration and atrophy. It is possible, however, that future experimental work might prove to be of some value in neurosyphilis as laboratory studies have already proven that in adequate concentrations the drug can be detected in the spinal fluid.

I realize that this short series of cases is not a sufficient proving ground to acclaim this antibiotic as the drug of choice in the treatment of all cases of ocular syphilis, but after observing the rather miraculous results in this limited number of cases, I am sincerely convinced that further experimentation is justifiable and that the time is not too far distant when this drug will be established as a recognized type of therapy in many forms of syphilis.

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# ACUTE INTUSSUSCEPTION: REPORT OF NINE CASES*

Ovid F. Pomerleau, M. D., Sisters Hospital, Waterville, Maine

Acute intussusception is one of the most common diseases of infants and children requiring an emergency abdominal operation. The diagnosis must be made early and surgical treatment instituted at once. Delay in operation or error in diagnosis, thus retarding proper treatment results in an increase in the mortality rate of this serious disease.

The present paper deals with an analysis of nine cases of acute intussusception, admitted to the Sisters Hospital, Waterville, Maine, during the past 20 years. Table I gives a detailed analysis of these cases which will be discussed.

The majority of the investigators agree that the etiology of acute intussusception is practically unknown. In scrutinizing these nine cases, there is no cause given as to why the condition occurred. Ladd and Gross made a study of this subject and found that there was no cause in 95% of this series. Oberhelman and Condon report recently that no cause was was found in 83.1% in a study of ninety-five cases. Rodney Maingot considers irregular peristalsis due to an acute enteritis, swollen Peyer's patches, allergic state or faulty diet, all possible factors. Meckel's diverticulum and intestinal tumors are sometimes found as causes.

Age and sex is certainly important as the majority of cases occur under one year of age and males predominate. This can readily be seen in this small series of nine cases, seven being under one year of age and seven being males.

It will be noted that case 1 in Table I developed an acute intussusception before he was 24 hours old; the night nurse making a notation on the chart that blood was present in the stools six hours after birth. In perusing the literature on the subject, no case was encountered as young as case 1, although it has been mentioned that it may occur in-utero. In discussing the diagnosis later, it will be seen that this case was not diagnosed even though the nurse had noted blood in the stools.

Familial etiological factors have not been mentioned in the literature. Case 1 and case 2 were first cousins, the two mothers being sisters, as well as being the two youngest cases in this series.

The symptoms of acute intussusception are clear and definite, as noted from Table I. All of the nine cases had vomiting and pains, seven of the nine cases had bloody stools; six had a palpable mass and six had symptoms of intestinal obstruction. None were in shock.

The diagnosis of acute intussusception should not be difficult. The mother will often give the first clue by stating that her child is sick and is passing blood in the stools. One is then alerted to rule out acute

* From the Surgical Service, Sisters Hospital, Waterville, Maine.

TABLE I—ANALYSIS OF NINE CASES ACUTE INTUSSUSCEPTION

| Case | | 1 | 2 | 3 | 4a | 5b | 6 | 7 | 8b | 9c |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | | 1 da. | 4 mo. | 6 mo. | 7 mo. | 7 mo. | 9 mo. | 10 mo. | 3 yr. | 17 yr. |
| Sex | | M | M | F | M | F | M | M | M | M |
| Surgeon | | OFP | OFP | EWH | LAG | JCM | AHM | EWP | EHR | LAG |
| Symptoms | Vomiting | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Pain | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| | Bloody Stools | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| | Palpable Mass | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| | Obstruction Signs | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No |
| | Shock | No | No | No | No | No | No | No | No | No |
| X-ray Confirmation | | Yes | Yes | Yes | Not taken | Not taken | Yes | Not taken | Not taken | Not taken |
| Operative Procedure | | All Reduced By Pressure | | | | | | | | |
| Type | | Ileo-cecal | Ileo-cecal | Ileo-cecal | Ileo-cecal | Ileo-cecal | Ileo-ileum | Ileo-ileum | Ileo-ileum | Ileo-ileum |
| Duration of Symptoms Before Operation | | 5 da. | 1 da. | 1 da. | 5 da. | 2 da. | 1 da. | 2 da. | 2 da. | 2 da. |
| Results | | Death | Recov. | Recov. | Death | Recov. | Recov. | Recov. | Recov. | Death |
| Cause of Death | | Shock | | | Shock | | | | | Peri-tonitis |
| Total Mortality Percentage | | 33.3% | | | | | | | | |

a. Ileostomy performed.
b. Routine appendectomy performed.
c. Complicated by ruptured appendicitis.

intussusception. A careful history will reveal that the child has vomited and cried with some abdominal pains.

Physical examination will show a very tender abdomen upon palpation and in the majority of cases, a palpable, "sausage" mass will be found along the course of the large intestine. Bailey advocates that the abdomen be examined without awakening the child, if asleep and over the sheet; if awakened, to be sure that the hand is warm.

In this series a palpable mass could not be felt in three cases but I believe the mass was there. In case No. 1, the child being just a few days old, abdominal distention being present, it was impossible to feel a mass. In case No. 2 the baby was very fat, weighing 21 lbs. at (4) four months, the mass could not be felt.

In case No. 9 which I personally examined at the time, there was board-like rigidity of the abdomen and so the mass was impossible to feel as it was complicated by acute ruptured appendicitis.

Rectal examination is very helpful as a mass coming down the rectum can be palpated. At times, blood can be seen on the examining finger before it appears in the stools aiding in making an early diagnosis.

A flat X-ray plate of the abdomen or barium enema will confirm the diagnosis which already has been made clinically, this giving assurance to the surgeon that immediate laparotomy is indicated. Feldman states the Roentgen examination offers the best means of arriving at a correct diagnosis. In this study of nine cases, four had X-rays taken and a diagnosis of acute intussusception was made by the radiologist in all four cases.

Anesthesia in all nine cases was ether inhalation. However, the operation can be performed under local anaesthesia.

The type of intussusception encountered in this series were ileo-cecal in seven, ile-ileo in one and ileocolic in another, the cecum having reached the recto-sigmoid junction.

The treatment of acute intussusception is early surgical interference with reduction. Lindberg and Maroles report 18 cases treated medically and successfully reduced by contrast enema. Gibson, Doherty, and Dixon report one case where a barium enema was performed, diagnosis made and at laparotomy, the intussusception was reduced. However, the non-operative reduction under the fluoroscope is not *recommended* generally, as it is uncertain. There is always a danger of overdistending the bowel and possible rupture.

The preoperative treatment is very important. The fluid balance has usually been disturbed by vomiting. Fluids, plasma or even whole blood must be given. It is recommended by some surgeons that the Wangensteen apparatus should be used before operation and after. It is best not to give morphine to small children but atropine Sulphate in small doses of grain 1/500 or grain 1/250 be given.

The operative procedure is manual reduction with the utmost gentleness by pressure from above. With an irreducible mass, one must resort to resection.

Post-operative treatment is along the same line as before with the addition of chemo-therapy, vitamin and careful feeding.

The total mortality rate in this small series is 33.3% which is close to the average mortality in large hospitals.

Gibbs and Sutton as quoted by Oberhelman and Condon reported a mortality rate of 30.4% in 92 cases from 1927 to 1942. Oberhelman and Condon on their analysis of 99 cases from 1925 to 1945 report a total mortality rate of 19.1% and they point out that the mortality rate has been progressively lowered in the last 40 years. It will be noted in these nine cases that all those operated within two days of the onset of symptoms survived, except in one case, No. 9, which was complicated by ruptured appendicitis. In case No. 1, the diagnosis was not made early as the attending physician suspected blood dyscrasia and diagnosed only on the 5th day when he was five days old, and confirmed by X-rays. Here it will be remembered that the nurses had noted blood in the stools six hours after he was born.

This paper again emphasizes the importance of early diagnosis of acute intussusception by means of the cardinal symptoms: (1) vomiting, (2) pain, (3) bloody stools, (4) palpable mass, (5) signs of intestinal obstruction.

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## THE PREFERENCE OF TRANSVERSE INCISIONS IN GALLBLADDER SURGERY

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Several prerequisites are necessary in the making of a proper abdominal incision, and these can be listed as follows:

1. A Good Operative Field — afforded by a properly made incision.
2. Physiologico-anatomical Considerations — the incisions should be made in such a manner as to mutilate the abdominal wall as little as possible.
3. Cosmetic Considerations — the incisions should be made in such a direction that they will leave no large and deforming scars.
4. Psychological Considerations.[1]

Any incision should be made so as to give a good operative field. The recognition of the necessity for a good operative field was one of the most important factors in the development of surgery, and it stands

in importance with the introduction of anesthesia and antiseptic, and later, aseptic technique in surgery.

A good operative field results not only from a properly made incision, but also from the correct use of retractors, forceps, a proper posture of the patient, and a proper elevation of the parts of the body.

The infliction of as little damage as possible to the abdominal wall is second in importance to the necessity of a good operative field.

Before discussing this last point in more detail, a brief review of the abdominal wall anatomy, insofar as it pertains to this paper, will be given.

Langer first described in 1861 that examination with a magnifying glass shows clearly that numerous fissures cross the skin in nearly a transverse direction. In fact, they are known as the "fissure lines of Langer."[2] The great Kocher advocated making abdominal incisions along these fissure lines. He showed both experimentally, and in practice, that wound healing of the skin is much neater and more secure when the incisions are made along them.

The fibers of the anterior and posterior sheaths of the recti muscles run horizontally, and when making a *longitudinal* incision, are cut transversely — perpendicular to the direction of their fibers. If the incision be made transversely, the fibers are cut parallel to their course.

The fibers of the rectus abdominis muscle run longitudinally, and splitting of the fibers gives free access to the abdominal cavity; however, the accompanying injury to the nerves makes muscle splitting of the rectus not a desirable feature.

The oblique muscles of the lateral abdominal wall (the external oblique, internal oblique, and transversus abdominis muscle), have their fibers running in many different directions; therefore, the fibers of the entire thickness of the wall cannot be split in one direction. The external oblique muscle can be safely split only in a downward, inward, and forward direction. Only after the split parts are retracted can the internal oblique muscle be split according to its location, which in the upper part of the abdominal wall, would be in an upward, inward, and forward direction. Only after the split lips of the external and internal oblique muscles are retracted, can the transversus abdominis muscle be split.

The *transversalis fascia* can be split only in a direction perpendicular to the midline — incision in any other direction will cut the fibers. The *peritoneum* can be split in a transverse direction only — incision in any other direction will cut the fibers.

The blood supply of the upper portion of the anterior abdominal wall is derived from the following arteries: superior epigastric, 10th and 11th intercostals, subcostal, branches from the lumbar arteries, and the inferior and superficial epigastric. The nerve supply of the upper portion of the anterior abdominal wall is derived from the 7th, 8th, 9th, and 10th thoracic nerves.

If we analyze the *course* of the fibers of the recti muscles and the direction of the blood vessels and nerves, we will notice that the superior and inferior epigastric arteries run in the same direction as the muscle fibers and that the intercostal vessels run perpendicularly to these fibers. The nerves also run perpendicularly to the recti fibers. This means that incisions into the upper abdomen, made by splitting the recti muscle fibers preserve part of the blood supply (the superior epigastric artery and ramifications of the inferior epigastric artery), and sacrifice another part of it (the abdominal ramifications of the lower intercostal arteries).[3] In opening the abdomen through a transverse incision, we sacrifice the superior epigastric artery, but preserve the abdominal terminations of the lower intercostals, and also the fibers of the sheaths. Concerning the blood supply, therefore, and subsequent adequate nutrition to the abdominal wall, either a *transverse* or *longitudinal* incision is justified in this area of the abdomen. As already pointed out, the fibers of the sheaths are cut across in the latter method.

However, concerning the *nerve supply* things are different. In the case of the longitudinal muscle splitting (or cutting), incision, we *preserve the muscle and cut the nerve supply* — the number of nerves severed depends on the length of the incision. In the case of a longitudinal incision between the ensiform process and the umbilicus, at least three nerves will be sacrificed. In making a longitudinal incision, the farther we go from the midline, the more muscle is left without innervation, and the more damage is done to the muscle lying to the *inner* side of the incision (now without a nerve supply, and, therefore, with loss of muscle tone, loss of function and action — hence, ease of formation of postoperative herniae). By cutting the rectus transversely, we preserve the nerve supply.[3]

If one wishes, then, to keep away from the rectus muscles and incise with a longitudinal incision laterally to the recti muscles, there is only one way to preserve both the muscles and the nerves: namely, to make a muscle-splitting incision with retraction of all the nerves which lie on the transversus abdominis muscle — a very difficult feat, and almost impossible to accomplish. The exposure would be very inadequate.

The earliest types of abdominal incision were longitudinal (and the majority still are). However, in many of these cases, postoperative ventral herniae followed. Frequent suppuration of the wound which followed surgery was thought, at first, to be the cause. The method of suturing was also blamed (some of the pioneers considering that each layer

should be sutured separately, while others believed that the layers should be sutured together), devising for this purpose, the figure of eight suture. Others in surgery stated that postoperative herniation followed the use of improper suture material, some blaming the use of soluble material, some of insoluble. However, in many cases in which no suppuration occurred, where the abdomen was sutured either through its entire thickness, or through several layers, or separately through each layer, when, either soluble or insoluble suture material was used, in a definite number of patients ventral hernia followed the operation sooner or later. The discomfort produced by the postoperative hernia, in many of the cases, was greater than the discomfort due to the disease which called for the abdominal operation.

The surgeon's inability to prevent the formation of postoperative hernia, irrespective of the method of closing the abdomen and of the type of suture material used, led some investigators to believe that the cause of postoperative hernia lay in the making of improper incisions.

In the late 19th century, Assmy of Czerny's Heidelberg Clinic, undertook experiments making longitudinal abdominal incisions in which several nerves were cut, and transverse incisions in which the nerves were preserved. He was able to demonstrate that in the case of longitudinal incisions, the part of the muscle lying to the inner side of the incision became atrophied, whereas that portion lying laterally remained normal. The scar that was formed was attached laterally to normal muscle and medially to atrophied muscle.[4]

Sprengel proved in 1910, as did Sloan in 1927, and Popovici in 1933, that in cutting the anterior sheath longitudinally the operator actually severed the aponeurotic continuation of all the lateral abdominal muscles, and because of this, the scar, sooner or later, became weaker, thinner, and wider; if this reached a definite degree, the scar gave way, and a ventral hernia ensued.[5, 6, 7]

Because of Assmy's work, transverse incisions became popular with many surgeons. The great Bilroth, in performing his first gastrectomy in 1881, used a transverse incision, not because in so doing there would be less injury to the nerve supply, but because he considered that such an incision provided more convenient drainage and gave better exposure. In the case of gallbladder surgery especially, is the latter point to be further considered; that is, better exposure with a transverse incision.

The gallbladder is fastened by loose connective tissue in the fossa vesicae felleae of the liver. The fundus, when full, projects beyond the anterior margin of the liver and comes in contact with the anterior abdominal wall just medianward from the anterior extremity of the 9th costal cartilage of the right side.

The corpus of the gallbladder extends slightly upward, backward and to the left and leads into the cystic duct — all these structures tending to be in a transverse plane. The gallbladder therefore, tends to be a *transverse organ* rather than a longitudinal one. It is logical then, that a transverse incision made directly over the usual site of the organ brings the latter directly in view along its entire course. Seldom, if ever, is a Balfour, or similar wound-retaining instrument necessary when a transverse incision is used, providing the incision is long enough.

The incision itself is made exactly transversely, generally midway between the ensiform process and the umbilicus, extending from the lateral border of the left rectus muscle to the costal margin of the right side. This makes the right pole of the incision end at the anterior extremity of the 9th costal cartilage — or between it and the anterior extremity of the 10th costal cartilage. In all cases, for best exposure, it should usually be made above the level of the lowest portion of the costal margin. All fascia, sheaths, and muscles are cut exactly transversely down to and through the peritoneum. The gallbladder "roll" inserted under the patient during the operation further increases the gaping of the wound — hence, better exposure. In the closure, the head and foot of the table are raised about 20-25° each, to reduce tension on the suture line — this cannot be done with longitudinal work.

Therefore, in the use of the transverse incision, especially in gallbladder surgery, the following prerequisites are observed:

1. The skin is cut along the "fissures of Langer."
2. The anterior sheath is cut perpendicularly to the midline.
3. The muscle is cut transversely — nerve injury is avoided.
4. The posterior sheath, transversalis fascia (which is strongly elastic, and according to modern views, prevents the formation of hernia more than any other simple factor), and the peritoneum are cut transversely — there is then no injury to the nerves, nor fibers.
5. An attempt should be made to spare the blood vessels as much as possible, but as mentioned above the arrangement of these vessels is such that some of them have to be sacrificed, no matter how the incision is made — these are of less importance.

Definite conclusions can be made concerning the preference of a transverse abdominal incision, and its advantages are quite evident:

1. It is anatomical and physiologic.
2. It is followed, far less frequently, by postoperative hernia or by an acute wound disruption.

3. The closure of the abdomen is easier because the approximation of the edges is easier, and it is not necessary to "fight" with protruding bowel.
4. Due to less tension, less adhesive tape, and small dressing, the patient is not afraid to cough, ambulates easier and sooner; therefore, cases of postoperative upper and lower pulmonary complications are far less frequent.[8]
5. The scar is less visible and thus cosmetic results are obtained — the scar "wears better," so to speak.
6. It gives better exposure than any other type of incision.

The transverse upper abdominal incision, not only of the skin, but of all the structures of the abdominal wall, will become more and more the choice of the future.

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# TUBERCULOSIS OF BONE TREATED WITH STREPTOMYCIN: A CASE REPORT OF

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K. C., a 12-year-old white boy was admitted to the hospital on January 7, 1948. With the exception of having the usual childhood diseases he had been in good health up until June of 1947. At that time he consulted a physician because of a painful left knee which was brought on by being kicked in the back of that knee by a cow. The patient's mother stated that X-rays were taken at the time and that she was told that there was no serious injury to the traumatized member. Within a few weeks the knee was "better" and the boy was able to perform the full range of his activities.

At this point it is of interest to state that at the time of trauma to the knee there was residing in the same house with the patient an uncle who was known to have active pulmonary tuberculosis, of which he died a few months prior to the patient's admission to the hospital. Too, it is of interest that the boy's knee and leg got "better" from the result of the original trauma. It remained "better" for approximately a month, but gradually the leg below the knee began to become swollen and painful. This did not cause the patient any great deal of discomfort unless he performed rather extreme exertion. On this occasion he was brought to a physician because the mother had only recently noted the swelling when she went to visit the boy on the farm at which he was staying.

On admission, the systemic review and physical examination were non-revealing with the exception of the examination of the left leg which showed a tender, swollen, warm, fluctuant mass over the medial superior aspect of the left tibia. The range of motion was normal with the exception of slight limitation of extension of the left knee. The knee joint did not appear to be involved, nor did the pre-patellar bursa. There was no lymphangitis. There was bilateral, non-tender, non-fluctuant, inguinal lymphadenopathy. The temperature on admission was 98.8°, pulse was 74, respirations 26 and blood pressure 126/68-64. Subsequent readings during the hospital stay showed morning temperatures ranging below 98.6° with afternoon rises never exceeding 100°. The pulse on only one occasion went above 100, it usually ranging at 90. Respirations stayed within the 20's.

R.b.c. on admission was 4.15; w.b.c. 9,000; Hgb. 10.5 Gm. (81%); polys 78; lymphs 16; 4 stabs; monos 4. The Schilling was 1:21. Urinalysis showed no albumin, acetone, sugar. The sp. gr. was 1.017. The sedimentation rate was 17 mm. in 30 minutes and 23 mm. in 60 minutes. The Hinton was negative.

Dr. M. Lubell reported on 1/8/48: "An osteolytic circumscribed area about one inch in diameter involving the antero-medial angle of the diaphysis of

the tibia and extending into the adjacent portion of the epiphysis. The bone septa are destroyed with destruction of the cortex. There is no evidence of regeneration. There is no involvement of the knee joint. While a localized subacute osteomyelitis is the most probable diagnosis, tuberculosis must be seriously considered. An osteolytic sarcoma is less probable."

A chest X-ray revealed no evidence of frank tuberculosis. Films of the pelvis and femurs revealed no bone changes. Acid phosphatase was within normal limits, being 3 King-Armstrong units. A tuberculin patch test was positive.

With the information at hand, we believed that we were now dealing with a relatively slowly progressing bacterial process, probably tubercular in origin, but undoubtedly complicated with secondary organisms because of the warmth of the fluctuant mass. The question then arose as to what to do. The knee joint, as noted, was not involved, but only a very thin plate separated it from the abscess cavity in the tibia and too much exploration of this cavity, even for the purposes of biopsy, seemed most inadvisable. It was decided not to drain the abscess, but to first do an aspiration. This was done on 1/14/48, a small amount of thick grayish-yellow material being withdrawn with some difficulty from the center of the fluctuant mass. A smear of this showed no acid-fast bacilli or other organisms; there were abundant polys and a few lymphs. A portion of the aspirated material was sent to the State Laboratory in Augusta for guinea pig inoculation. Another portion was cultured in our laboratory where it revealed no growth in three days. Following the aspiration, a fenestrated plaster cast was applied from the upper thigh to the toes.

The question of antibiotic therapy arose. With the belief that this was a mixed infection, penicillin in dosages of 50,000 units every three hours was given. At the time of instituting streptomycin therapy the Trudeau Committee had not made its report of recommended dosages. We arbitrarily elected to give this patient streptomycin in dosages of 0.25 Gm. every six hours. Adjunctive therapy consisted of supplemental calcium, polyvitamins with higher doses of vitamin B complex and vitamin C, plus ferrous gluconate, all of which were given orally.

On February 20, 1948, an X-ray revealed that the area of bone destruction in the epiphysis and diaphysis on each side of the epiphyseal line, medially, appeared to be filling in with new bone and that there was no further increase in the extent of the lesion. With this evidence of healing, despite the lack of proper drainage, it was felt that more open drainage of the abscess would hasten healing. Under light ether anesthesia, the skin overlying the fluctuant area was freely incised and a soft rubber catheter gently inserted into the depth of the cavity and secured after gentle evacuation of the major portion of the abscess material, which appeared yellow, watery and contained caseous and blood-clot-like masses. Following this, a fenestrated cast was applied as before.

On March 17, 1948, a report was received from the State Laboratory in Augusta that tuberculosis was found in the autopsied guinea-pig. (Material sent from the incision and drainage on February 20 was subsequently reported as positive for tuberculosis.) Following this report, penicillin parenterally was discontinued, while streptomycin was continued as before.

Following the incision and drainage in February, the wound was redressed daily, 0.5 Gm. of streptomycin plus 50,000 units of penicillin being introduced into the abscess cavity daily until March 1, at which time the catheter was removed as there was only a very slight amount of purulo-sanguinous discharge. A week after the removal of the catheter, the wound closed spontaneously and appeared to be healed, but in another four days a sinus developed which persisted for approximately a month before closing spontaneously.

The casts were changed and X-rays taken at monthly intervals thereafter and revealed a progressively healing process. Streptomycin therapy was continued in the daily dosage of 1.0 Gm. per day until May 21, 1948, a total of four months. The patient was discharged on May 22, 1948, and continued wearing his cast until June 25, 1948, at which time weight bearing was permitted, although the previously osteolytic area was not completely healed or filled in. However, films taken in August and September of 1948 showed progressive filling-in with new bone and increased calcification. A film taken in January of 1950 shows the area to be completely healed.

We have reported a case of bone tuberculosis successfully treated with daily doses of 1.0 Gm. of streptomycin for a period of four months. During the course of this therapy at no time was there any tinnitus, dizziness, or skin manifestations; only on one occasion early in treatment was there slight transient albuminuria and mild ketosis; a mild normocytic-hyperchromic anemia responded easily to treatment. Healing was progressive, beginning early. Sedimentation rate returned to normal in three months. Normal function of the leg returned almost immediately following removal of the cast and no impairment of the knee resulted; nor has normal growth been impaired.

# THE PRESENT SCOPE OF GASTRIC RESECTIONS

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The subject of gastric resections is a broad one, and only a few of the present trends can be taken up in this paper. The purpose of any one of several types of resection is the same; namely, the surgical removal of a major portion of the acid-secreting gastric mucosa.

To accomplish this, many operations have been devised, modified, improved upon, and some discarded. Some are more radical in extent than others. There has been a trend in the last few years towards the less radical procedures. The fact remains that the end result aimed at is to insure the inability of the remaining stomach tissue to secrete enough gastric juice to cause another lesion, or to produce a gastrojejunal ulcer at the site of the anastomosis.

The mortality rate for resections of all types is surprisingly low. It has been estimated nationally to be about 2 per cent. This is especially true of benign lesions. Malignant lesions, especially early ones, raises this figure to about 5 per cent.

The indications for gastric resections are well known; namely, gastric and duodenal lesions, perforations, repeated hemorrhages, obstruction, and failure of the patient to respond to medical treatment. Recently, the roentgenologists have called to our attention another condition that will probably be included in the list of causes for resections; namely, the prolapse of antral mucosa through the pylorus giving an X-ray appearance of duodenal ulcer and clinically giving symptoms of partial to complete obstruction. About two months ago, we operated on a patient that had this condition.

The type of resection to perform on the patient depends a good deal on the bias of the operating surgeon. He should adopt the procedure that seems best indicated for the patient in each case and not limit himself to any one set procedure. He should take into consideration the location, size, type of lesion, and the duration and severity of the symptoms complained of. He must and should keep in mind the age, sex, and occupation of the patient. Space does not allow for elaboration of this phase of the subject.

When doing a resection, the surgeon need not have a definite procedure in mind, as the initial steps of each operation are the same. This consists of the division and ligation of the branches of the gastric artery in the gastro hepatic omentum and the ligation of branches of the gastro duodenal artery.

The Polya resection is one of the best known and is still one of the most commonly performed operations for gastric lesions, especially when a radical resection is indicated. It involves the mobilization of two-thirds to four-fifths of the stomach, and closure of the duodenal stump, the remaining stomach being anastomised directly to the jejunum. It can be performed as an anterior or posterior procedure. When an anterior resection is done, a longer loop of jejunum is necessary to place the loop anteriorly to the transverse mesocolon. Posteriorly, a loop of jejunum is utilized beginning 10 cm. from the ligament of Treitz and delivered through an opening made in the transverse mesocolon for anastomosis to the stomach. The anterior Polya is technically easier to perform and takes less time. In both types, the proximal loop of jejunum is anastomised to the lesser curvature of the stomach.

The Moynihan modification of this operation consists of anastomising the distal loop of the jejunum to the lesser curvature of the stomach. Although this procedure has been argued about at length from a physiological standpoint, the fact remains that the results are uniformly good.

Balfour's modification of the anterior polya consists of performing an entero-anastomosis at the dependent part of the proximal with the distal loop of the jejunum.

The Polya operation often results in a relatively large stoma being formed and has been credited with the reason for the frequent occurrence of the dumping syndrome. A great deal of research work has been done lately on this problem, and a few of the finding will be mentioned here. For instance, O. T. (Jim) Clagett of the Mayo Clinic told the author about five years ago that he had performed a series of Polya resections in which the dumping phenomena had occurred in about 10 to 11 per cent of the cases. This may account for his turning to the Billroth 1 operation during the last few years, especially when the cases appear feasible. During the last five years his surgical section has performed almost 200 resections using the Billroth 1 technique.

The dumping syndrome, sometimes referred to as postprandial distress, may be mild or severe. It is usually first noticed when patients begin to take solid food during convalescence. On the other hand, it may appear late. When severe, it is very distressing to the patient. It occurs fairly abruptly while eating or immediately following a meal. It consists of a sense of fullness, weakness, severe nausea, cardiac palpitation, and epigastric distress. Some patients almost seem to be in shock. Wallaeger and his colleagues found that the cause was partly due to the physiological processes created by the anastomosis. There was too quick emptying from the large stoma

of the stomach contents into the jejunum. They found that overstimulation of the jejunum by the abnormal introduction of gastric contents caused hyper peristalsis throughout the small intestines. Bile and pancreatic juice was not as readily available to the ingested food; and lastly, the mixing of food with the digestive elements was entirely abnormal because of the surgical shunt of the gastric contents away from the duodenum. It is also thought that it may be due to jejunal distention. They also discovered an excessive loss of fat, protein, and nitrogen in the stools of these cases, and an inability of the patient to gain weight. In fact, many of them had lost weight. Breakfast was the most difficult meal for these patients because of the morning nausea. In some cases, the nausea persists throughout the day.

They found that the fat, protein, and nitrogen loss, and loss of weight or inability to gain weight seemed to be in ratio to the severity of the symptoms experienced by the patient. A short time ago, we had an out-of-state, summer tourist at the hospital for treatment of this dumping syndrome. She had had a resection performed in one of the larger medical centers, a few weeks previously, and was in Maine to convalesce from the operation. She was treated and discharged asymptomatically in about a week.

The treatment of the postprandial symptoms consists of placing the patient on a high protein, high vitamin, diet, beginning with a small amount of bulk and increasing the amount gradually until the patient received at least 2,500 calories daily. Then, without increasing the amount of bulk, the caloric value is raised to 3,000 and over. This insures adequate body requirements and a gradual increase in weight is noted without increasing the severity of the postprandial symptoms. They do better eating three times daily than with more frequent feedings of smaller amounts.

The occurrence of this syndrome seems to be more uncommon and less severe with the Hofmeister modification of the Polya operation. In this type of resection, a portion of the lesser curvature of the stomach is closed off; and a smaller stoma is created in anastomising the jejunum to the remaining stomach opening. This procedure slows down the emptying time of the stomach; and, as a result, the syndrome problem is greatly reduced. This resection also allows the mobilization of the greater amount of the lesser curvature and is ideal for lesions in that area. One of the objections to this operation is that, when closing of the stomach and doing the anastomosis, a treacherous angle is formed between the jejunum and partially closed end of the stomach where a leakage may occur.

It was mentioned a while back that Clagett had reverted to the Billroth 1 operation in many cases. The modification of the original Billroth 1 operation that is being done in his surgical section is that of Schoemaker. Schoemaker devised a clamp bearing his name that was ingenious in that in removing the stomach it left an opening approximating in size to that of the lumen of the duodenum. The same end result can be obtained in using long curved hemostats. This operation is also excellent for lesions on the lesser curvature, especially benign ones in which resection of the stomach can be carried higher up along the lesser curvature; and the end of the stomach, after closure of the lesser curvature to the desired point, is then anastomised directly to the end of the duodenum. The success of this operation depends on anastomosis without tension and without limitation of resection to the desired amount of stomach. The open end of the stomach should approximate in size that of the duodenum.

Bancroft's method of dealing with the duodenum in troublesome resections has not received the attention it deserves. Mobilization of the duodenum is a time consuming procedure. This is especially true in chronic cases when scar tissue, inflammation, and edema are present. It is also possible to get into serious trouble in this area. In addition, these cases usually have troublesome oozing and bleeding that takes considerable time to control. He divides the gastric antrum proximal to the pyloric ring. Opening the gastric stump, he then dissects out and trims out all of the gastric mucosa to a point distal to the pyloric ring. This still leaves intact the muscularis and serosa, which is closed off in the most convenient manner. The main thing is a tight closure. This is true not only here but in any resection.

Years ago in a situation in which he found inflammation and edema, Balfour used to mobilize the stomach and do his anastomosis, then close the pyloric opening, and sew up the patient. Ten days to two weeks later, he would re-operate on the patient, and mobilize the duodenum to his satisfaction. By this time, the inflammatory process had subsided considerably and little difficulty was encountered. Bancroft's modification spares the patient a second operation. E. Judd, Jr., has pointed out that this modification alone extends the use of resection considerably beyond what was thought possible previously.

The Polya and Hofmeister-Polya type of resection are most frequently performed in our hospital and our results have been uniformly good. When we do a Polya resection, we generally make the opening in the jejunum somewhat smaller than that of the stomach. Thus, when doing the anastomosis, we funnel in the stomach which narrows the lumen and creates a smaller stoma.

In the Hofmeister type of resection, we create a stoma that can accommodate about two fingers in width. These smaller stomas, we believe, account for

the fact that up to now we have not had a single case of postprandial distress.

We, also, are fortunate in having the services of a well-trained anesthetist. The importance of good anesthesia in resections cannot be over emphasized. We are assured of good relaxation without which adequate exposure is next to impossible. Continuous spinal, supplemented with pentothal sodium is the anesthesia of choice in this hospital for gastric resections.

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## ROENTGEN THERAPY FOR TREATMENT OF THE PAINFUL SHOULDER

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Early in the history of radiology the analgesic effects of radiation were noted. In the early days of radiology before the development of modern apparatus exposures necessary to produce satisfactory radiographs were much heavier than today. When it took a very heavy exposure to produce a satisfactory pelvic picture, occasionally a patient suffering from a lumbago or sciatica would experience definite relief of pain even if it were only temporary. In 1920, Dr. K. H. Thoma, a dental surgeon observed occasional relief of pain following the taking of dental films.

In the past 25 years, considerable literature has been produced regarding the treatment of painful and inflammatory conditions by radiation with Roentgen rays. Some of the reports are perhaps overenthusiastic and the results are debatable. I am sure, for instance, that the surgeons with whom I am associated, would not care to refer to me for treatments such conditions as acute pancreatitis, of which the treatment by X-radiation has been advocated in a recent paper. Such grave surgical conditions I feel, had best not be subjected to radiation in the present state of our knowledge.

Such experimental observations, as I have made, in the treatment of respiratory tract pathology such as asthma, pneumonia and sinusitis have been equivocal in their results. My experience with the widely advocated radiation treatment of herpes zoster leads me to believe that improvements following treatment are sporadic and uncertain.

However, there are many painful conditions in which treatment by radiation is safe and extremely satisfactory. Despite the voluminous literature which has been published I feel that radiation treatment is not very widely used and it is looked on with skepticism by many practicing physicians. This is, perhaps, the result of the overenthusiastic claims that have been made by many therapists. In this respect the radiotherapists seem to me to be in the same position as the allergist who suffers from the attitude of disbelief induced by overenthusiastic reports of the allergic background of too many conditions.

Of the painful afflictions which are undoubtedly amenable to radiotherapy, the one which is most often referred in my experience, is the painful shoulder. The relief of pain obtained, and the increased freedom of motion are often dramatic. It is not an uncommon experience to see a patient with an arm in a sling, sleepless because of pain, return in a day or two and report freedom from pain and a restful night's sleep.

Painful stiff shoulder is commonly called "bursitis." It is due to a wide variety of pathological conditions. The type which starts as an inflammatory degeneration in the rotator cuff is the most frequent. The rotator cuff is a useful orthopedic designation for the musculo-tendinous envelope formed by the supraspinatus, infraspinatus and teres-minor inserted into the greater tuberosity, and the subscapularis inserted into the lesser tuberosity. In middle age, and more often in active males, and more often on the right than the left and more often in individuals working at occupations which produce more stress and strain on the shoulder apparatus, there are degenerative changes and deterioration of the blood supply. These changes predispose to ruptures of the tendons of the rotator cuff which may be of greater or less degree, from a tear of a few fibers to a major rupture. There is associated rupture of the subdeltoid bursa with secondary changes of subdeltoid bursitis, periarthritis and adhesive capsulitis.

It is rather important to have a radiographic examination before treatment, which is of great value in ruling out more serious conditions such as tuberculosis of the shoulder joint or bursa, fractures and dislocations, acute suppurative arthritis, osteomyelitis and neoplasms.

To my mind, the importance of the demonstration of calcification in the degenerated ruptured tendons or in the bursa, has been exaggerated, as there is a group of cases due to lesions in this area which do not show calcification radiologically.[5, 6]

Small calcific deposits suggest "tendinitis calcarea." With evidence of larger (greater than 3 mm. di-

ameter), deposits of calcium salts it is suspected that the bursa must be involved.

Radiation should be initiated as soon as possible after the onset of pain as everyone who has treated painful shoulders with radiotherapy has noted a much higher percentage of satisfactory results in the treatment of early cases than in late chronic cases.

Lattman[4] concluded from his series that the results indicated Roentgen irradiation would relieve the pain and permit restoration of function more rapidly than other forms of treatment.

*Methods of treatment:* All authors agree that treatment should be conservative. The dosage per treatment and total dosage should be moderate. There is no need to produce any perceptible skin reaction. Dosage advocated ranges from 75 roentgens per field per day up to 300 roentgens. Treatments are given by some therapists daily and by others at intervals of 3 or 4 days. Kilovoltage ranges from 125 to 200 KVP. Number of treatments ranges from 2 or 3 up to 10 or more.

My own method is to give treatments at 200 KVP filtered through ½ mm. of copper and 1 mm. of aluminum, giving 160 roentgens at a treatment. These treatments are given at intervals of 3 or 4 days over the shoulder joint anteriorly, posteriorly, and laterally in succession. A full course is generally 5 treatments. It has been my practice to discontinue treatments by the third treatment if there has been no improvement, as the favorable cases usually respond promptly. However, I have had several patients who voluntarily returned for further treatment after initial discouragement because they felt benefit after an interval of a couple of weeks. There usually is a temporary exacerbation of pain after the first dose and, less often, after the second. The patient is warned of this effect.

Klein,[8] in a review of a large series of cases, divides them into acute (duration of condition less than 1 month); subacute (duration up to 2 months), and chronic (duration more than 2 months). He found the best response in the acute cases with excellent relief of all symptoms in 69%. In the subacute and chronic cases the response was slower with more failures and 2 or more courses of treatment were necessary.

The percentage of favorable responses as given in reports of series of cases treated by various authors, varies from 70% to over 90%. My own experience in the treatment of 81 cases over an 8-year period is that about 80% of cases treated received partial or full relief of symptoms. Most of these cases were acute or subacute.

Some authors believe that the cases with roentgenographically visible calcification respond much more favorably than cases without visible calcification. My own experience does not favor this view, and Young[10] reporting the Mayo Clinic experience states that presence or absence of calcareous deposits has no effect on the end result.

Opinion also differs on the effect of radiation on the calcific deposit. Klein[8] in a paper on the treatment of 100 cases, found that 69% of his cases showed a partial or complete resolution of the calcification.

Bouchard and Pierce[6] state, on the other hand, that control roentgenograms made 2-3 months after a course of roentgen therapy, show that a small percentage of the cases will have resorbed the calcareous deposits. The majority will show little or no change. In my own experience, although such follow-up X-rays were made on only a few cases, I should favor the second view, that radiation does not have any constant effect on the calcified deposits. I can see little theoretical ground for such an effect. I do not consider the presence or amount of calcium an indication of the extent of disease or its degree of activity.

Allen[11] makes the interesting observation that the patients who responded best seemed to have the most acute exacerbation following the first treatment. My own experience is in accord with this although a reservation must be made that the patients' subjective report of symptoms is not very reliable as nervous patients with a low pain threshold are more likely to report severe reactions.

In patients undergoing roentgentherapy, I do not advise any supplementary treatment except such analgesics and narcotics as their own physician may prescribe. As regards advice as to using the arm, which every patient asks for, I advise immobilization in a sling for the most acute cases. For patients with less painful shoulders and a limited range of mobility, I recommend such use of the arm that may be comfortable. I advise against painful exercise.

An important point in favor of radiation treatment is that it is the simplest and safest procedure available. It requires little time, no hospitalization or elaborate expensive surgical procedures. If the results are unsuccessful there is no contraindication to the employment of other procedures.

The mechanism of the analgesic effects of X-radiation in treatment of the painful shoulder has been the subject of considerable speculation and debate. It is obvious that the relief of pain is effected before the radiation could possibly induce a reversal of those changes which are the cause of the pain. If it is thought that the pain sensation is induced by pressure on the nerves by hyperemia, vascular congestion and local edema, radiation which produces an early reaction of increased hyperemia would theoretically aggravate this pressure. Nevertheless, it has been our observation that after an increase in local discomfort for a few hours to 36 hours after roentgen

therapy, definite and progressive diminution in pain results in the majority of cases treated.

Bouchard and Peirce (Mosely — Shoulder Lesions),[4] suggest that: I. There is a direct physico-chemical effect by X-rays upon nerve conduction or the pain nerve-endings. II. The effect, indirectly, of increased blood flow will improve nutrition and wash out waste products from the area. O'Brien, in an excellent recent review of the analgesic effect of roentgen therapy,[1] discusses various theories that have been advanced to explain the successful relief of pain in a score of crippling conditions such as boils, carbuncles, bursitis, herpes zoster, Marie-Strumpell spondylitis, and metastatic bone disease. He discusses the theory of Langer who suggested that radiation acts on the autonomic nervous system. The autonomic system has two functions, stimulation and retardation. As long as the two are in balance radiation effect will not be biologically demonstrated, but as soon as the systems are out of balance, the radiation will act to restore the balance.

It has been suggested that the relief of pain is in greater or less part psychological. O'Brien accepts the idea that the relief of pain in treating these conditions may be in part, a psychosomatic effect but feels that the evidence at hand, negates the proposition that it is the only or chief effect.

### Conclusions

Radiotherapy for treatment of the painful shoulder which is due to degenerative and low grade inflammatory tendinitis and bursitis is a simple, entirely safe, and economical procedure with a high percentage of favorable results. It produces no changes which would preclude the use of later orthopedic or surgical procedures.

The etiological cause of the pain and the theoretical basis of the response to radiation are debatable points which are not well understood.

The author reports and comments on a series of 81 cases treated over an 8-year period.

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## REPORT OF DELEGATE TO AMERICAN MEDICAL ASSOCIATION

The 99th Annual Meeting of the American Medical Association was held in San Francisco, June 26-30, 1950. A sojourn in San Francisco is a memorable experience at any time and a sojourn there during the meeting of the A. M. A. is an extra memorable experience. Your delegate regrets that he did not meet any colleagues from Maine, although he read that some were registered, namely, Dr. and Mrs. Manning C. Moulton, from Bangor; Dr. D. F. D. Russell, from Leeds; and Dr. Bert A. Kanwit, from Togus.

The atmosphere in the House of Delegates was invigorating, refreshing, and "rugged." As usual Dr. Borzell of Philadelphia presided over a practically 100% membership. The spirit of the officers was calm but alert, deliberate but forward looking. Be assured that the affairs of the association are in able hands.

In one day seventy-four items of business were dispatched. Most of them were resolutions which had been referred to committees where they were discussed by interested delegates, considered by the committee members, and brought back to the House with a recommendation either for or against adoption. This procedure is reported to you to indicate the democratic way in which business is conducted. The question of dues didn't cause any discussion. It was unanimously agreed that they should be set again at $25.00. And it was agreed generally that the campaign of education was a successful campaign. In Whitaker and Baxter, President Henderson said we had a winning team and we did not propose to change.

The Hess Report was in the limelight again. So many delegates wanted to be heard that the meeting of the special committee was held in a ballroom of the hotel in order to provide seating accommodations.

The resolution passed by our House of Delegates at the Annual Meeting at Poland Spring was read at the Committee meeting and filed as evidence. The committee recommended, as previous committees have, that a physician should not dispose of his professional attainments or services to any hospital, corporation, or lay body under terms which permit the sale of (his) services by such agency for a fee. Procedures to enforce the recommendations of the report have been difficult to establish. Legal hurdles have obstructed progress along the course. The recommendation of the last reference committee to consider the Report is as follows:

"If and when a physician is found to be unethical by the proper authorities as established through channels specified in the Constitution and By-Laws, and he is still retained on the staff of any hospital approved for resident or intern training by the Council on Medical Education and Hospitals, it shall be the duty of the Judicial Council to request the Council on Medical Education and Hospitals to show cause as to why that council should not remove such hospital from the approved list under the assumption that the hospital is just as unfit for the training of young physicians for unethical reasons as it is unfit because it may not or does not have proper filing systems for its laboratory or clinical records."

And we believe with Dr. Dwight Wilbur, Editor of the Medical Journal of California that; "Honorable bodies given definite precepts and rules of conduct usually adjust themselves and embrace the right." Another highlight was the nation-wide broadcast of the installation of the incoming President, Dr. Elmer Henderson. The Presidential address has been published in the *Journal* and is worth reading.

The Scientific Exhibits were up to the usual standards and they have unmeasurable educational value. The fracture clinics were a noteworthy addition. The moving picture demonstrations and the television programs were valuable contributions. All doctors could find a demonstration of some kind to fit into their search for newer knowledge. The sections presented full programs of papers dealing with diagnosis and treatment of recent nature. The Technical Exhibit was as usual the greatest display of the means and aids to the practice of medicine that could be assembled anywhere in the world. Time did not allow me to view the exhibit of Art created by the doctors, but reports indicated that it was an interesting display of paintings, engravings, photographs, sculptures, and works of art. It is a popular feature of the meeting.

The elections resulted as follows: President-elect, John W. Cline of San Francisco; Vice President, R. B. Robins of Arkansas; Trustees, Thomas P. Murdock, Meriden, Connecticut; and L. W. Larson, Bismark, North Dakota. Dr. Cline has been and still is a vigorous, capable leader who will give the association a strong, positive, and dignified administration. Dr. Bob Robins, Chairman of the Democratic State Committee of Arkansas, is a practicing physician with an engaging personality and strong convictions that the present American way of practicing medicine is the way we want in this country. Dr. Tom Murdock from Meriden was elected to succeed Dr. Miller of Hartford, Connecticut, and Dr. Larson was elected to succeed Dr. John Fitzgibbon of Portland, Oregon. Both men have served in the House of Delegates and have been chairmen of important committees and are well qualified to function effectively as Trustees.

The next meeting, interim session, will be held in Cleveland early in December. I advise you to attend. If you are not able to attend the interim session, plan to be at Atlantic City for the 1951 annual session.

Thomas A. Foster, M. D.,
*Delegate.*

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The BCG vaccination campaign against tuberculosis is progressing throughout the world. As of 1 March, 20 million children and young adults have been tested, and about 10 million vaccinated against tuberculosis. Mass vaccination campaigns were completed in Czechoslovakia and Finland last summer, and will finish in Poland this spring. Work is under way in Austria, Greece, Yugoslavia, Morocco, Ceylon, India, Pakistan, Algeria, Tunisia, Italy, Egypt, Israel and Lebanon. Campaigns will soon begin in Syria, Malta, Mexico and Ecuador. BCG vaccinations campaigns are a joint enterprise of UNICEF, Scandinavian relief societies and WHO. — *WHO Newsletter,* February-March, 1950.

The wise doctor has always considered his patient as a man or woman who is suffering from, say, a growth or a tuberculous infection, rather than the uninteresting container in which some morbid process happens to be placed. — Norman B. Capon, M. D., F. R. C. P., *Brit. M. J.,* April 15, 1950.

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Tuberculosis rates . . . rose in every European country seriously affected by the war, and there is now a growing realization in Europe that tuberculosis is our main public health problem.—Marc Daniels, M. R. C. P., D. P. H., *Brit. M. J.,* Nov. 12, 1949.

# EDITORIAL

## The Fall Clinical Session

The Fall Clinical Session of the Maine Medical Association will be held at Bangor, Maine, October 15 and 16. The preliminary program for this session is in this issue of the JOURNAL but a more detailed program will be mailed to each member of the Association about October 1st. Watch for it.

Dr. Herbert C. Scribner, Secretary of the Penobscot County Medical Society, and Dr. Clement S. Dwyer, member of the Scientific Committee of the Maine Medical Association, assure us that they are making every effort to make this 1950 Clinical Session one of vital interest to every member. You, who have been privileged to attend previous clinical sessions in Bangor can well visualize what you have in store, both scientifically and socially.

Briefly the meeting will open officially Sunday evening, October 15, at 8.00 o'clock with Dinner at the Bangor House. There will be a non-medical speaker to entertain you. Don't forget that the ladies are invited to attend this meeting.

On Monday, October 16, Clinics will be held at the Eastern Maine General Hospital. From 9.00 A. M. to 12.00 noon the Surgical Service will conduct an Operative Clinic and the Medical Service a Medical Clinic. In the afternoon, from 2.00 to 5.00 P. M. a Pediatric Clinic will be under the direction of Dr. Albert W. Fellows, Dr. Martyn A. Vickers, Dr. Robert O. Kellogg and Dr. Wilbur B. Manter.

From 5.00 to 7.00 P. M., there will be Open House at the Bangor House, sort of a period of relaxation between the scientific program of the day and evening. Again the ladies are invited.

This will be followed by dinner at the Bangor House with C. Stewart Welch, M. D., of the Pratt Diagnostic Clinic, Boston, as guest speaker.

Registration for members will be at the Bangor House on Sunday, October 15, from 7.00 to 8.00 P. M., on Monday at the Eastern Maine General Hospital from 8.00 A. M. to 3.00 P. M., and that evening at the Bangor House from 5.00 to 7.00 P. M. Plan now to be present and make this one of the largest Clinical Session registrations in the history of the Association. Incidentally, Dr. Scribner informs us that the Bangor House will give your reservation priority consideration if you let them know that you are attending the Clinical Session.

The Penobscot County Medical Society is having a Symposium on Hematology at the Eastern Maine General Hospital on Tuesday, October 17, 1950, which will be conducted by Dr. C. Stewart Welch and Dr. William Dameshek of Boston. All members attending the Clinical Session are cordially invited to be present.

### WOMAN'S AUXILIARY

On Monday, October 16, there will be a meeting of State and County Officers and Committee Chairmen of the Woman's Auxiliary, at 10.00 A. M. at the Eastern Maine General Hospital, and at 2.00 P. M., a General Meeting.

The ladies are also invited to attend the Dinner Sunday evening at the Bangor House and the Open House Monday evening.

# PROGRAM

## Clinical Session

### MAINE MEDICAL ASSOCIATION

**Sponsored by the Penobscot County Medical Society**

**Bangor, Maine**

**October 15 and 16, 1950**

SUNDAY, OCTOBER 15, 1950

8.00 P. M.

Dinner — Bangor House

Ladies Invited

Non-medical Speaker

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MONDAY, OCTOBER 16, 1950

Eastern Maine General Hospital, Bangor

9.00 A. M.-12.00 Noon

Surgical Service ..... Operative Clinic

Medical Service ..... Medical Clinic

Cases with patients will be presented

2.00 P. M.-5.00 P. M.

Pediatric Service ..... Pediatric Clinic

To be conducted by Dr. Albert W. Fellows, Dr. Martyn A. Vickers, Dr. Robert O. Kellogg and Dr. Wilbur B. Manter

5.00 P. M.-7.00 P. M.

Open House at the Bangor House

8.00 P. M.

Dinner — Bangor House

Speaker: C. Stewart Welch, M. D., Pratt Diagnostic Clinic, Boston

Subject: To be announced

**Notes**

Make your reservations now. The Bangor House will give your reservation priority consideration if you advise them that you are attending the Clinical Session.

On Tuesday, October 17, 1950, the Penobscot County Medical Society is having a Symposium on Hematology at the Eastern Maine General Hospital, which will be conducted by Dr. Welch and Dr. William Dameshek of Boston, and invites members attending the Clinical Session to attend.

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**Registration**

Sunday, October 15, 1950 — Bangor House

Monday, October 16, 1950 — Eastern Maine General Hospital

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**Woman's Auxiliary to Maine Medical Association**

Sunday, October 15, at 8.00 P. M.—Dinner at the Bangor House

Monday, October 16—Eastern Maine General Hospital:

10.00 A. M. Meeting of State and County Officers, and Committee Chairmen

2.00 P. M. General Meeting

5.00-7.00 P. M. Open House at the Bangor House

## COUNTY SOCIETIES

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President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Armand Albert, M. D., Van Buren
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**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Lincoln - Sagadahoc

A meeting of the Lincoln-Sagadahoc Medical Society was held at The Days in Newcastle, Maine, on August 21, 1950. There were 16 members present.

Francis A. Winchenbach, M. D., of Bath, and Stanley R. Lenfest, M. D., of Waldoboro, were elected Delegates to the Maine Medical Association.

Twelve interesting medical and surgical cases were presented by the Staff of the Miles Memorial Hospital, Damariscotta.

NEIL L. PARSONS, M. D.,
*Secretary.*

## Somerset

The annual meeting of the Somerset County Medical Society was held August 15, 1950.

The following Officers were elected for the coming year:

President, Harland G. Turner, M. D., Norridgewock.

Vice President, Edwin M. Lord, M. D., Skowhegan.

Secretary-Treasurer, H. Carl Amrein, M. D., Madison.

Board of Censors: John Friend, M. D., No. Anson; George E. Sullivan, M. D., Bingham; and Lester F. Norris, M. D., Madison.

Program Committee: Albert J. Bernard, M. D., Marion S. Strickland, M. D., and H. Carl Amrein, M. D.

Delegate to the Maine Medical Association, George E. Sullivan, M. D. Alternate, Howard L. Reed, M. D., Skowhegan.

Dr. Edwin M. Lord was appointed as Medical Advisor of the Civilian Defense Council of Somerset County.

Dr. Walter Jordon, Jr., of Solon, was elected to membership.

H. CARL AMREIN, M. D.,
*Secretary.*

## New Member

### Somerset

*Walter Jordon, Jr., M. D.,* Solon, Maine.

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Council on Pharmacy and Chemistry: New and Non-official Remedies, 1949, Xanthine Derivatives, Philadelphia, J. B. Lippincott Company, 1949, p. 323.

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# NEWS AND NOTES

## Pediatric Institute for the General Practitioner

Pediatric Institute for the General Practitioner to be held Friday, September 22, 1950, at the Central Maine General Hospital, Lewiston, under the sponsorship of The Division of Maternal and Child Health, Maine Department of Health and Welfare, endorsed by the Maine Medical Association.

PROGRAM

10.00 A. M. Welcome, Albert Fellows, M. D., State Chairman, American Academy of Pediatrics, Bangor, Maine.

Ward Rounds, Henry C. Thacher, M. D., Chief of Pediatric Services, Central Maine General Hospital, Lewiston, Maine.

12.00 Noon Recess.

1.30 P. M. Care of the Newborn Infant, Clement A. Smith, M. D., Assistant Professor of Pediatrics, The Children's Hospital, Boston.

3.00 P. M. Kidney Diseases in Childhood, Jack Metcoff, M. D., Resident, The Children's Hospital, Boston.

4.30 P. M. Recognition and Treatment of the Common Psychiatric Disorders of Childhood, Dane G. Prugh, M. D., The Children's Hospital, Boston.

5.00 P. M. Discussion Period.

## Coming Meetings

*The American Academy of Allergy*

The American Academy of Allergy in coöperation with the Faculty of Medicine of McGill University, Montreal, is sponsoring a Postgraduate Course in Allergy on October 26, 27, 28, 1950, in Montreal, Canada.

Requests for additional information should be addressed to Bram Ros, M. D., McGill University Clinic, Royal Victoria Hospital, Montreal, Canada.

*American College of Chest Physicians*

Postgraduate Courses in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians with the Coöperation of Members of the Staffs of the New York City Medical Schools and Hospitals, will be held at the Hotel New Yorker, New York City, November 13-18, 1950.

For additional information write to Frank R. Ferlaino, M. D., Secretary, Council on Postgraduate Medical Education, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

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# The Journal
## of the
# Maine Medical Association

Volume Forty-One | Portland, Maine, October, 1950 | No. 10


## FOREWORD

With the permission of the Editorial Board of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION, this issue is dedicated to Dr. Everett C. Higgins.

After practicing in Phillips as a country doctor, Dr. Higgins moved to Lewiston and for the past thirty years has contributed greatly to the practice of medicine in central Maine and to the development of the Central Maine General Hospital. He has been particularly interested in the development of the Bingham Plan for the advancement of medicine in Maine.

On the occasion of his 70th birthday (February 12, 1950), he was honored at a birthday dinner at the Central Maine General Hospital, at which time he was presented with gifts and many tributes by the members of the Staff of the Central Maine General Hospital. On this occasion, an original poem, dedicated to Dr. Higgins, was read by Dr. Julius Gottlieb and is presented in this issue for publication.

ASSOCIATE EDITOR.

### To Dr. Everett C. Higgins*

I

The Almighty God, in wisdom infinite,
And vision limitless in time or space,
To pierce the countless ages yet to come,
Did consummate the World's immense creation
By making Man; and in this final task
He put the finished touch to World's perfection.

II

And yet, the Man himself was left undone,
And in him lacked at birth that noblest thing
Which sanctifies his common lump of clay,
And turns a mere beast to child of God:—
With attributes of immortality:—
From God we get our bodies;—from Life, our souls.

III

How blest are those who, not content with meats
And drink and perishable joys of life,
Succeed to find a soul to round their lives:
How blest are those immeasurably greater men
Who have a soul so big, so great, so vast,
That they share it with humankind.

IV

A kindly Providence was not content
To merely make a physician of thee
Thou cut a path thyself for other men —
For many thousand men to follow thee,
In quiet lanes of high and deepest thought,
In active thoroughfares of human service.

V

And so hath nature fashioned thee in mind
And body; so blest are thou within and out,
That we do bow in humble adoration
At sight of perfection in human might
Within our midst; distributing its light
To brighten our days and spur our endeavors.

* On the occasion of Dr. Everett C. Higgins' 70th Birthday, February 12, 1950.

VI

For not in vain was granted thee a body
Impervious to time and frailties.
The passing years have skipped thy human flesh,
And faintly touched the sinews of thy youth,
And unimpaired hath left a youthful setting,
To tightly hold that finer gem—a soul so rare.

VII

Fully two score and more years has served to
Pained bodies and troubled minds—
Building many a mortal monument to toil, skill and devotion
Reflecting pride to our hospital, cities, and states:
Relieving the pains and troubles of today
Yet labouring for a better tomorrow.

VIII

Many mortal lives have spent in countless charitable deeds
From the blessed gifts of thy God given talents.
Full many a day has stretched a kindly hand
To ease the pain and sorrows of countless men—
And they who felt the warmth of thy hand and heart
Will more clearly recount the great Sermon of the Mount.

IX

The things thou gave to us and to all are all thou hadst
To give: and in thy giving them away,
Enriched thyself a many thousand fold,
And multiplied our virtues mutually,
Thus making us far better than we were,
Yet leaving thee far better than us all.

X

What greater fate than that of humankind
To generously give of self as thou
Hast done? What finer men do live and breathe
To stamp their images on future years
As thou hadst done? What better nobler contact
Could magnify our spirits, as thou hadst done?

XI

Pray God that we may follow thy great vision
Along the path thou hewed for us with toil:
Pray God that thou live for many years more
To reap the ecstasy of past and future labour
And give of self that others may more equal thee
As guide, physician, friend, and neighbor.

JULIUS GOTTLIEB, M. D., D. Sc. (HON.).

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# PROGRESS IN AMERICAN MEDICINE*

RALPH A. GOODWIN, M. D., Auburn, Maine**

In reviewing the history and progress of the American Medical Association and taking that as the barometer of American medicine in general one is impressed by the slow and rather ponderous evolution of the problems both social and scientific of organized medicine.

The American Medical Association was founded in May, 1847, just one hundred three years ago, in the city of Philadelphia. The object primarily was the elevation of the standards of medical education and the promotion of better health.

From that date we recognize American medicine as organized and of course the official records begin with that origin.

With this beginning the history reveals a considered, conservative advance with strict adherence to the Hippocratic oath and code of ethics and with interests confined wholly to the professional and scientific aspects.

* Presidential Address presented at the 96th Annual Session, June, 1950.

** President, Maine Medical Association, 1949-1950.

## ACCOMPLISHMENTS

Beginning with the first years of the twentieth century the American Medical Association took on a somewhat broader program.

1. *Medical Education:*

As Dr. Bauer, President of the Board of Trustees of the American Medical Association, in a recent survey of the accomplishments of the organization states, even after fifty years medical education was at a low ebb.

In spite of much opposition at the time the American Medical Association instituted a forceful campaign which has been the strongest influence in bringing medical education up to its present status.

2. *Council on Medical Education and Hospitals:*

Through the activities of the Council on Medical Education and Hospitals the standard of hospitals has been raised to its present level.

3. *Council on Pharmacy and Chemistry:*

The Council on Pharmacy and Chemistry was organized against extreme antagonism from certain

sources, such as patent medicine firms and drug houses.

Today, however, the doctor looks for council approval on many of the products he uses as a safeguard against inferior and impure preparations.

4. *Bureau of Investigation:*

The Bureau of Investigation has exposed many frauds, nostrums and quackery, thus protecting the public and doctor alike.

5. *Library of the American Medical Association:*

A package library may be obtained on any subject and it is sent by mail to any applicant.

6. *American Medical Journal:*

*The American Medical Journal* is another achievement.

7. *Scientific Sessions:*

The two scientific sessions held each year are a wonderful source of instruction.

All these accomplishments show progress through the years.

No one can deny the tremendous advancements in scientific progress especially in the last twenty-five years. Notable among them are the discovery of the Sulfa Drug, Penicillin, Aureomycin, Chloromycetin and others.

## Social Changes in the Last Twenty-Five Years

During the past twenty-five years, while the doctors of the country have been generally preoccupied with their professional duties, changes have been gradually taking place in the social structure of the nation.

Industry has progressed with its mass production, its formation of Unions, its Workmen's Compensation Act, Industrial and Group Health Insurances. There was a growing tendency for the public and state governments to look for more and more from our central Washington government, a shifting of responsibility.

As early as the 1920's rumblings were heard in Congress for some form of national sickness insurance.

In the 1930's these rumblings were more pronounced.

In 1934 a campaign for a form of socialized medicine by the government was being agitated. This was discussed in the government by the Secretary of Labor.

In 1938 the Committee of Physicians, four hundred thirty in number, came out with proposals for socialized medicine.

In 1943 the Murray-Wagner-Dingell Bill was introduced, the first concrete proposal for socialized medicine.

## Action and Attitude of the American Medical Association Concerning These Social Trends

Through the 1930's and 40's the American Medical Association had been deeply cognizant of all this agitation for socialized medicine.

According to the records of the House of Delegates the costs of medical care had been discussed year after year.

Numerous committees had been working on the problems for better care of the American people.

As early as 1938 the American Medical Association recognized that a positive program was necessary rather than a negative attitude in order to succeed and urged the state societies and the medical profession to initiate, develop and put into practice a comprehensive system of medical care for all the people according to the American plan of medical practice.

I mention these facts because it has often been asked—why didn't the American Medical Association do something about all this before we arrived at our present dilemma?

According to the records the committee did work feverishly on these problems and many plans were brought forward.

The magnitude of the task of finding some way for looking after the health of one hundred forty million people, somewhat comparable to the proposed socialized medicine plan, was tremendous.

The early voluntary hospitalization insurance was then not satisfactory, but with gradual evolution and development of these plans they were endorsed and approved.

Let us not overlook this fact that since 1943 but for the efforts of the legislative committee of the American Medical Association we would now have socialized medicine in this country. These bills were killed in committee as they came up each year in Congress.

The introduction of the Compulsory Health Insurance Bill as proposed by Mr. Ewing in 1948 threw the whole affair into politics.

The House of Delegates met the situation promptly and throwing away part of their code of ethics, as regards publicity and politics, formed a definite program of (1) educating the public and (2) adopting a positive program of Voluntary Health Insurance as against Compulsory Health Insurance.

This program is now a year and a half old. It has stopped, temporarily at least, the passage of the Compulsory Health Insurance Bill and nothing else would have stopped it.

As Dr. Henderson, President-Elect of the American Medical Association, stated at the Delegates' meeting in Washington this year, American medicine has come a long way in a short time.

As retiring President of the Maine Medical Asso-

ciation you may wonder gentlemen, why I have confined this talk so far to the progress of the American Medical Association.

I have done so because the Maine Medical Association *is* the American Medical Association.

It is an integral part. It is in fact one-fiftieth of the American Medical Association.

The aims and purposes of this Maine Medical Association are those of the American Medical Association.

The Maine Medical Association is ninety-six years old, nearly as old as the American Medical Association.

The past history of this Association is one to be proud of. It has had some distinguished leaders. According to the records of the House of Delegates of the American Medical Association, in the year 1870, one Dr. R. G. Palmer, delegate from Maine, demanded the reason why men from Howard University, a negro institution, were not admitted to the Association.

The reason eventually given was one not of race or color but rather of credentials in preparedness, which satisfied the Maine delegate. However, it shows that he was there and heard from.

Admitting this progress in American medicine, both state and national, we must acknowledge that as progress really goes we have hardly scratched the surface.

If we are to accomplish what we must in the next few years regarding the voluntary health insurance as against compulsory health insurance we must have total unity among the state societies and loyalty to the American Medical Association.

We look to the American Medical Association for a definite detailed program and guidance and I believe we are getting it.

We would be lost without it.

To illustrate—Last August a bill called Reorganization Bill No. 1 was before Congress. The President of the United States complying with the recommendations of the Hoover Commission for economy initiated a bill which would put welfare, education and medicine in one Bureau, the Federal Security Administration with Mr. Ewing at the head as Cabinet member.

The bill was before the Senate Committee and as Congress was about to recess, the bill, unless opposed, would become law within thirty days. What happened! Every state and county organization in the country was notified to telegraph the Committee stating their opposition. The bill was killed sixty-three to thirty-seven. This as a result of our Washington office being on the job.

### 1950 Program

At the Chicago meeting of state secretaries and officials of the forty-eight states on February 12, Whitaker and Baxter outlined the program for 1950.

The 1949 program had checked the compulsory health bill for the time being. With this new Congress there have been a lot of so-called fringe bills introduced.

These, such as the Medical Education Bill, the School Health Bill, the total disability clause of the Social Security Bill, would be an opening wedge for socialized medicine.

One Senator has said that if they couldn't get the Compulsory Health Bill through as such, they would put it through piece meal and they are trying to do it.

It has been said that if a Democratic Congress is elected this fall and it carries out the Fair Deal and Welfare programs of the President socialized medicine will become law.

With this in view the American Medical Association program for this year is to enter politics to the full legal extent.

### Amazing Survey

An interesting survey of a large typical metropolitan area shows that large segments of our population did not vote in 1948.

33% of clergyman failed to vote.

37.5% of automobile dealers failed to vote.

37% of the independent grocers did not vote.

20% of the doctors failed to exercise their franchise.

26% of the independent druggists did not go to the polls.

24.5% of the Chamber of Commerce failed to vote.

14% of the membership of Rotary and Kiwanis did not vote.

Many of all these men were not even registered.

This demands action on the part of the medical profession. We should see that the candidates opposing socialized medicine and opposed to the socialization of business in general should be elected.

We cannot, as an organized body, endorse a candidate but each individual doctor can work with any political action committee or organization to promote a candidate.

One thing that the state and county medical societies can do legally is to urge the people to go to the poles and vote.

With only 51% of the voters exercising their rights in the 1948 election this is necessary to carry on a successful campaign.

Each doctor can write to his friends and patients requesting them to vote in the next election.

This may make the difference between success and failure.

### What Has Been Our Progress in the State of Maine

1. The Maine Medical Association has endorsed fourteen private insurance companies to obtain individual and group insurance here in the state.

2. Our public relations have been improved through the efforts of the Public Relations Committee. Better regulation of response to emergency and night calls have been instituted in many cities. At the February 12 meeting in Chicago of the secretaries from all the states, the question of the necessity for responding promptly to emergency and night calls was considered the most important in improving public relations.

3. The Committee for the National Education Campaign in the state has been doing good work.

The speakers for Voluntary Health Insurance have been active.

### Survey of Number of Speeches

A recent survey shows that 176 speeches have been made in Maine the past year for Voluntary Health Insurance.

4. There has been a general awakening in the physician of his individual responsibility in this matter of Government versus Voluntary Health Insurance.

5. With all this I feel there has been no slackening of interest in scientific subjects. The paramount interest in the county societies has been, as it should be, the advancement of scientific medicine.

### Recommendations for the Coming Year

For the coming year I would recommend that:

1. The activities of the past year must be continued even with more energy.

a. The seeking of endorsements from every organization possible in favor of Voluntary Health Insurance and resolutions sent to Congressmen and Senators.

b. A continuation of speakers talking before civic organizations, such as service clubs, women's organizations, the Grange, Parent-Teachers' Associations, etc.

c. Public relations must be constantly improved.

d. Above all, there must be a persistent effort to advance and improve the benefits and the scope of the Voluntary Health Insurance plan, at a cost that the patient can afford consistent with the benefits. Every person must be insured.

In conclusion, I believe that both in the Compulsory Health system and the Voluntary Health system the aim is to give the best possible medical protection to the American people.

We believe that the best method is the Voluntary plan of insurance.

We believe that it will be far more efficient and much less expensive than the Compulsory plan and that it will preserve the free enterprise system and the individualism of the American physician.

We believe that it will prevent the beginning of a socialistic state.

With this review of progress I think we can begin the next year with a note of optimism.

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The prevalence rate of 1.2 per cent clinically significant tuberculosis found among male inmates of New York State Penal Institutions is considerably higher than in the general poulation, among whom the rate is estimated to be about 0.3 per cent. The higher rate among inmates of this type of institution indicates the need for tuberculosis control programs not only for the care of tuberculous inmates, but also for the protection of nontuberculous inmates and employees.—Julius Katz and Robert E. Plunkett, *Am. Rev. Tuberc.,* January, 1950.

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Studies of the coincidence of pulmonary scarring or calcified nodules and histoplasmin skin sensitivity in tuberculin-negative persons have emphasized that lesions which in the past would have been interpreted as tuberculous in origin may be the result of an infection with histoplasma capsulatum or some other related organism. — Samuel Saslaw, M. D., Ph. D., M. C., A. U. S., and Charlotte C. Campbell, *Am. J. Pub. Health,* April, 1950.

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Today, because of procedures which have become routine, the private physician's office is a bulwark against such diseases as smallpox and diphtheria. In like manner, it can become one of the most effective agencies for tuberculosis control. By promoting such a public health measure, the general practitioners of the nation would be acting in line with the great tradition of the profession as a force for prevention as well as cure of disease.—A. C. Christie, M. D., *Pub. Health Rep.,* June 2, 1950.

# ROENTGENOLOGICAL EXAMINATION OF THE COLON

## (With special reference to the use of tannic acid and of routine lateral views)

Clark F. Miller, M. D., Lewiston, Maine

It should be stated at the outset that the information and suggestions offered in this discussion will probably be of value chiefly to those who practice roentgenology on a part-time basis or in smaller hospitals where complete diagnostic equipment, including efficient spot-filming devices, is not available. It is hoped that, by the routine use of the two simple procedures to be described, which are now becoming common practise in most large roentgenological departments, the chances of missing important lesions will be minimized.

### The Use of Tannic Acid Powder

In this department we add two level tablespoons of tannic acid powder to each two-quart can of the barium mixture. We have had no untoward effects during its routine use over a period of two years, and the patients appear to suffer no greater discomfort because of it. By virtue of its astringent and adhesive properties, the tannic acid will throw the mucosal pattern of the bowel into greater relief following evacuation of the barium enema. Small malignant lesions which depend for their identification largely on localized mucosal destruction will therefore stand out more clearly in contrast with the adjacent normal mucosa. The following case will serve as an unusually good illustration of these facts.

Case 1. G. D., a 57-year-old white female, had been having occasional tarry stools for six months, and was admitted to the hospital suffering from severe anemia. There was nothing else of significance either in her history or on physical examination. X-ray films taken following a barium enema without tannic acid two months previously were reported as negative (Figures 1 and 2). Repeat barium enema showed a small annular carcinoma in the ascending colon, which was satisfactorily demonstrated only on the post-evacuation films (Figures 3 and 3a). The lesion could not be demonstrated on the previous post-evacuation film, although it undoubtedly must have been present at that time.

Pathological diagnosis following resection was adenocarcinoma, grade 2. There was no lymph-node involvement. Patient is alive and well today, two years later.

### The Use of Routine Lateral Views

In this department lateral views centered approximately over the recto-sigmoid junction are taken routinely both before and after evacuation in addition to the usual PA films and indicated spot films. Either a right or a left lateral position may be used in any particular case, or occasionally both, at the discretion of the roentgenologist who can best determine during the fluoroscopic examination which projection will give the best "spread-out" view of the distal sigmoid and recto-sigmoid junction.

The anatomy of this portion of the large bowel is such that it is very often impossible to visualize this area satisfactorily at the time of the fluoroscopic examination, even when the patient is turned into an extreme oblique position. Once the patient has been turned into a complete lateral position under the fluoroscope, the image becomes too dim for accurate observation, except in the case of exceptionally thin individuals. Moreover, the capacity of most under-the-table tubes is inadequate for satisfactory spot-filming in this position. A regular radiographic exposure is therefore necessary, preferably with a machine having at least a 200 ma. capacity, to produce a clear image of the recto-sigmoid junction in the lateral position.

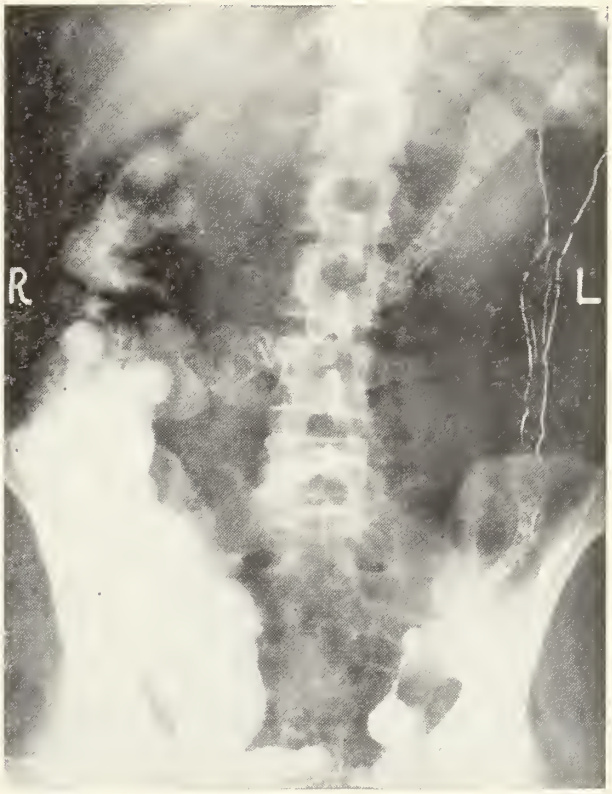
The importance of this routine additional view is further emphasized when one remembers that this "blind" area is, if one excludes the rectum proper, the favorite site for the development of malignancy in the large bowel.

The second case presented here will illustrate these points.

Figure 1



Figure 2




Figures 1 and 2: Case 1. Pre- and post-evacuation films without tannic acid added to barium mixture. No lesion can be seen.

Figure 3

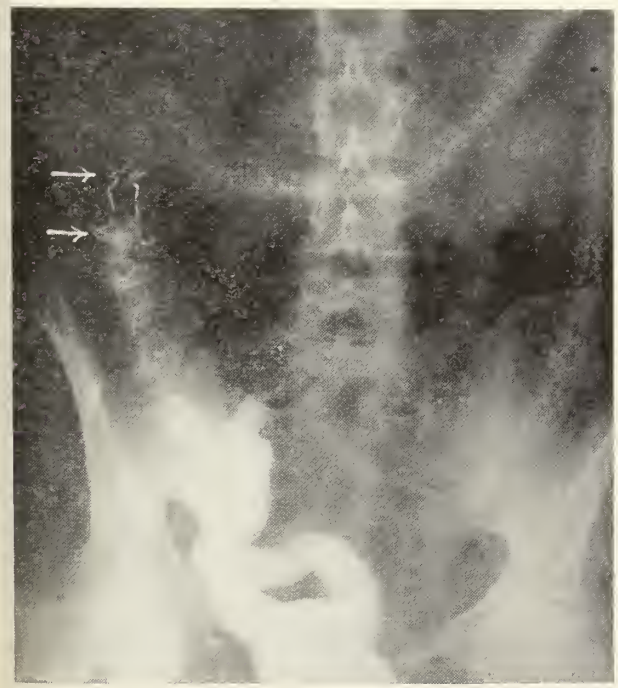


Figure 3: Post-evacuation film with tannic acid added to barium mixture. Same case as in Figures 1 and 2. Note difference in appearance of mucosal pattern of colon.

Figure 3a



Figure 3a: Tracing of portion of bowel shown in Figure 3. Note how small annular carcinoma of ascending colon stands out due to overhanging margins and loss of normal mucosal pattern within the confines of the lesion.

Figure 4

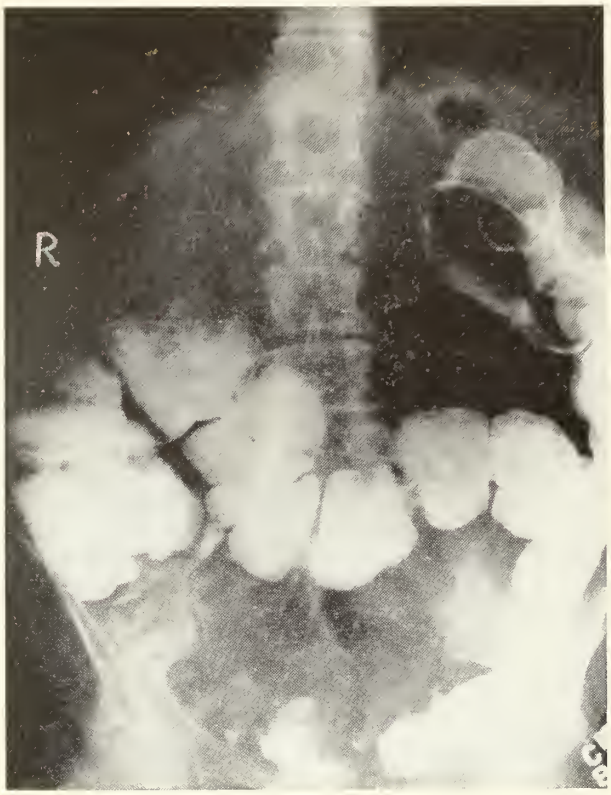
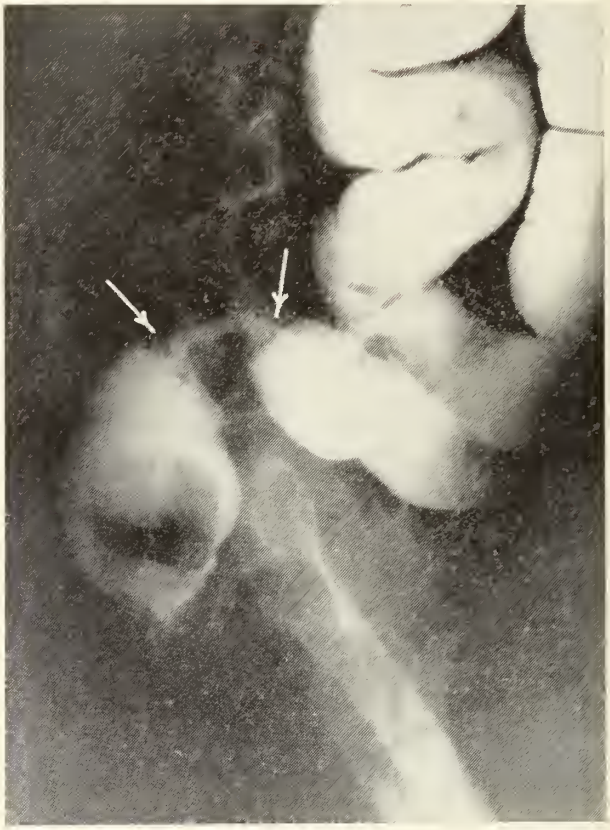



Figure 5



Figures 4 and 5: Case 2. PA and lateral views before evacuation of barium enema. Rectosigmoid lesion is clearly shown only in lateral position.

Case 2. B. F. was a 74-year-old white female with a one year history of alternating constipation and diarrhea. She had noticed a weight loss of 20 lbs. in the past eight months. There was no other significant history. As in the preceding case, this woman had had a barium enema performed elsewhere a few months previously, reported as negative. Re-examination by barium enema demonstrated a large annular carcinoma of the recto-sigmoid (Figures 4 and 5). The significant point is that this lesion could not be satisfactorily shown on the PA views, but was very clearly visible on the lateral view.

Exploratory laparotomy revealed a large fixed inoperable carcinoma involving the recto-sigmoid, with metastases to the liver and to the iliac and para-aortic nodes. A colostomy was performed.

## Further Discussion

The two cases presented above were chosen as examples because of the extreme importance of demonstrating malignant lesions in the colon as early as possible. However, it should be pointed out that the described technics have proven valuable in other types of disease. Any condition which will cause distortion of the normal post-evacuation pattern will be more clearly evident when tannic acid is used. We have even occasionally demonstrated the presence of polyps more satisfactorily than with the standard air-contrast studies of the colon.

On the lateral views, one can study the relationship of the posterior wall of the rectum to the sacral curve, and thus detect the presence of interposed masses in this area. Fixation of the recto-sigmoid can be very clearly demonstrated by comparing the lateral views taken before and after evacuation. Finally, in one rather unusual instance we have noted the presence of multiple diverticula of the sigmoid and of the descending colon which were invisible at fluoroscopy and on the PA views.

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# THE MISUSE OF PENICILLIN AND OTHER ANTIBIOTICS IN THE TREATMENT OF ACUTE OTITIS MEDIA*

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Because it is truly a miracle medicine, penicillin has in some instances become a panacea. Its empirical use is rewarded now and then by some measure of improvement, particularly when penicillin sensitive organisms are the etiological agents. The disappearance of pain, fever, and discharge from the ears in response to penicillin therapy during an attack of otitis media, does not constitute a cure. The responsibility of the physician does not end here. The future hearing acuity of the patient is also his concern for good hearing is a prerequisite to complete adjustment to society, economically as well as socially. To ignore definitive treatment is neglect, analagous to a purely hypothetical situation when an infection of an eye would be treated with little or no attention given to the preservation of Vision in that eye.

The sterilization of exudate in the middle ear by antibiotic therapy may prevent the complication of mastoiditis, if sufficient quantity of it is given over a long enough period of time. Complete resolution of the inflammatory changes that have taken place in the middle ear can only be effected by providing for the escape of the fluid from the middle ear. A properly performed myringotomy done in the early stages of the acute media does this. When a myringotomy is not done, the continued presence of an exudate in the middle ear, even though it might be sterile, causes thickening of the membrane of the middle ear. The mobility of the ossicles and even the ear drum are lessened. Utimately some fibrosis develops beneath the membranes and the hearing acuity suffers a permanent reduction. The histological changes that take place are irreversible. One might suppose that the exudate is taken care of by passing out the Eustachian Tube or by absorption. Too often this is not the case.

When seen in the office of the otologist the incompletely treated cases of acute suppurative otitis media can be divided roughly into two groups.

### Group I

In which one or two doses of penicillin were given causing the pain and fever to subside. The ear drum is intact and "may not appear too bad." Hearing in that ear is muffled. Without myringotomy or adequate penicillin, the destructive process of disease may continue minus its acute symptoms resulting in mastoiditis and/or possibly a more serious complication. Enough destruction of the ossicular chain can occur to permanently damage the hearing.

### Group II

No acute symptoms. Hearing diminished on the side involved. The ear drum will probably be intact and present a normal concavity. Its reflection of light, it translucency and color will be altered. Generally the drum is dull, appears somewhat opaque and its color may vary from a dull reddish reflection of the hyperemic mucosa of the middle ear. The color can be a bluish tint or an amber.

When the drum is opened and the fluid from the middle ear is evacuated by suction or by catheterization of the Eustachian Tube, the fluid will be found to be quite viscid and can be pulled out into long ropes of mucoid secretion. Improvement following this procedure is usually prompt, but the amount of improvement is variable.

Adequate treatment of acute suppurative otitis media includes the old surgical principle of surgical drainage of an abscess. An early and properly performed myringotomy never permanently harms an ear drum. Concomitant administration of penicillin or any other antibiotic is indicated if the patients' infection is severe or fulminating. Antibiotics, if administered, should be in large doses and should be continued for a minimum period of 5 to 7 days. Acute otitis media unaccompanied by marked constitutional reaction may respond completely to a myringotomy and administration of ephedrine nose drops. It is not uncommon to find pain and fever disappearing twelve hours after a myringotomy alone. In the event that a marked improvement does not take place twelve or twenty-four hours after a myringotomy, the administration of an antibiotic is justifiable.

Recurrence of acute otitis media can be minimized by the removal of hypertrophied and diseased tonsils and adenoids; attention to nasal allergy; and by such measures as will improve the general health and resistance of the patient.

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# SHOULDER PAIN

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Pain in the shoulder is second only to back pain among the number of orthopedic complaints seen in office practice. In its non-chronic and less severe forms it is all to often dismissed as "rheumatism" by the general practitioner. We will attempt to review a few of the common causes of shoulder pain excluding the arthritides, fractures, dislocations, and tumors.

The etiology of shoulder pain is almost always traumatic. By this we do not necessarily mean acute violent trauma, but the continuous minor trauma to which the shoulder joint is exposed in a large number of occupations.

## Subacromial or Subdeltoid Bursitis[1]

The symptomatology of this condition is usually sudden in onset although the underlying cause may have been progressing for some time. These patients come into the office holding the arm to the side to immobilize it. They are in acute distress due to pain and the least abduction causes the pain to be excruciating. If the case is seen early in the attack the pain is over the bursa. There is occasionally some fullness in this region. If seen later in the attack, the pain often has migrated from the tip of the shoulder to the insertion of the deltoid. In either case, abduction of the arm to right angles with internal or external rotation will increase the pain because the bursa is being compressed between the greater tuberosity of the humerus and the acromion.

Subdeltoid bursitis may follow a fall on the hand or elbow where the bursa has been traumatized by being compressed, or it may follow a complete or incomplete tear of the musculotendinous cuff, as in a sudden adduction of the arm while it is being abducted.[2] The sudden increased tension brought on the tendons in this region may result in a partial or complete tear of the supra spinatus tendon. If the first 20° of abduction is initiated with difficulty, it is suggestive of a partial tear of the supra-spinatus. If initiation of abduction is impossible, this is a certainty. All subacromial lesions are prone to involve the subdeltoid bursa.[3]

An X-ray study should be made routinely, — and will show the presence of calcium in the subacromial region if this be present; but if the symptoms are definite and the patient cannot internally or externally rotate the arm when in abduction, the diagnosis can be made by the clinical symptoms.

The treatment consists of two methods:

(A) Deep X-ray therapy will give good results.[4] The pain should be relieved immediately — occasionally, however, it will gradually subside following the treatments. Deep X-ray treatment is not available in smaller communities. In this case another method is equally successful.

(B) This method is by infiltration of the area with procaine hydrochloride followed by irrigation with normal Saline solution and puncturing the calcified area with the needle to allow the escape of the calcareous deposit — and the infiltration of the tissue with the saline solution.

Following the procedure of the infiltration the arm should be manipulated in the extremes of motion, and it should be continued by the patient. Wearing a sling is contraindicated.

[5]The calcium seen by X-ray is usually in the fibers underlying the bursa and not in the bursa itself — unless the floor of the bursa has ruptured and the pasty mass has escaped into the bursa. Puncturing the floor of the bursa with the needle to allow the calcium to escape will relieve the symptoms. It is not necessary to completely wash out the bursa to relieve the condition. When this procedure is properly carried out, it is rarely necessary to resort to a surgical removal.[6]

## Periarthritis

Periarthritis of the shoulder joint is developed in cases which have had either suddeltoid bursitis, or complete or incomplete tears of the musculotendinous cuff of long duration which have gone untreated or been improperly treated. This is the condition which results in the so-called "frozen shoulder." Abduction of the arm is very limited and if the arm can be abducted to about 90° it is usually done by rotating the scapula instead of actual motion between the scapula and the humerus. In such cases a roentgenogram of the joint affected will usually show no bone or joint pathology. There is often a point of maximal tenderness, and this is usually located just below and anterior to the acromion.[7] When the shoulder is abducted passively, holding the scapula fixed with the other hand or preferably by an assistant, a point is reached where abduction comes to a complete and abrupt stop; either due to pain and muscle spasm, or to adhesions between the capsule and the under surface of the acromion, the bursal walls having adhered one to the other, or even to adhesive bands between the head of the humerus and the capsule. Injection of the point or points of maximal tenderness with 1% procaine hydrochloride, followed by manipulation and prescribed exercises to increase motion of

the shoulder, will often relieve the pain and lead to complete recovery. Incidentally, the use of a larger volume of diluted procaine yields better results, probably due to tissue distention. In the cases that do not yield to the above treatment, the patient should be given a general anesthetic (we use Sodium pentothal whenever feasible), and the arm gently but firmly manipulated to break up the adhesions. The shoulder should be immediately X-rayed following such manipulation, because the ever present decalcification and weakness of the humerus, which invariably follows a long period of immobility, may result in a fracture of the proximal end of the humerus.

Naturally, the patient will have severe pain and disinclination to exercise the shoulder following such manipulation, but it is essential that he or she be well sedated and made to do the prescribed exercises. Heat and massage may also be of value in relaxing the muscles prior to active motion. It may be necessary to inject procaine solution in the next few days following manipulation to keep the patient moving the arm without too much discomfort. Persistence in treatment will almost invariably bring about a good result.

### Compressing of the Brachial Plexus

Other conditions causing shoulder pain are those causing compression of the brachial plexus. These often involve a more extensive region than the shoulder itself, but may be reflected mérely in shoulder pain, especially if the 4th cervical dermatome is involved. These conditions will be discussed but briefly.

The three important syndromes which cause compression of the brachial plexus are: (1) cervical ribs; (2) scalenus anticus syndrome; (3) the costoclavicular syndrome.

*Cervical ribs* are rare and may be ruled in or out by X-ray. When they give rise to symptoms their treatment is the same as that of the scalenus anticus syndrome. In exceptional cases, the rib itself must be excised.

*The scalenus anticus syndrome* is much more common than is generally believed and its diagnosis is being made more and more often. Judovick and Bates have presented a comprehensive report of this syndrome's diagnosis and treatment.[8]

Scalenus anticus syndrome may be aggravated by the presence of a cervical rib. It is due to compression by the muscle of the brachial plexus or subclavian artery. It occurs usually in adult life, mostly in the period of greatest muscular development. At first there is pain in the affected extremity followed by muscular weakness. Sudden turning of the head or downward pull of the shoulder may cause a sharp and lancinating pain. Usually this occurs in the latter part of the day. Pain may follow the distribution of the internal cutaneous ulnar and median nerves.

An important sign is diminution in the volume of the radial pulse. The pulse can be decreased or even obliterated by having the patient turn his head toward the affected side while taking a deep inspiration. Conservative methods of treatment may be sufficient to relieve the symptoms in mild cases. These include lessening the load on the shoulder girdle of the involved side, local heat applications, sleeping with the hands above the head, or prone — with the arms over the sides of a narrow bed.

Some patients require mild analgesics.

If these conservative measures do not relieve the symptoms then procaine injections into the scalenus anticus muscle is indicated.

If Horner's Syndrome (slight ptosis of the eyelid, enophthalmos) and miosis develops due to the extension of procaine about the sympathetic chain, the test should be disregarded. Sympathetic anesthesia will relieve shoulder pain whether or not a true scalenus anticus syndrome is present. Spasm of the anterior scalenus muscle may be primary or it may be secondary to another lesion of the shoulder, such as subdeltoid bursitis or a cervical rib.

*The costoclavicular syndrome* also causes compression of the brachial plexus but in a different manner. In this condition there is a descensus of the shoulder girdle narrowing the space between the first rib and the clavicle and impinging upon the brachial plexus and also upon the subclavian artery. McGowan and Velensky[9] have devised a simple test of high accuracy in the diagnosis of this condition: "A blood pressure cuff is placed around the upper part of the arm with the patient in the standing position. The shoulder is held well forward and upward and the blood pressure is recorded. The patient is then asked to put the shoulders down and back approximately in the position adopted by a soldier at attention. The blood pressure readings are again taken. The reaction to the test is considered positive when there is a reduction in blood pressure of 20 points or more."

The treatment of this condition consists of avoiding anything which might cause the shoulder to be depressed, such as carrying heavy objects in the hand or on the shoulder of the affected side; and secondly, in performing exercises to strengthen the trapezius and levator scapulae muscles. If exercises fail, more radical treatment in the form of scaleniotomy or removal of the 1st thoracic rib is recommended.

A number of diseases not directly related to the shoulder may offer shoulder pain as the presenting symptom.[10] Coronary insufficiency is the most frequently seen of these. Contrary to popular opinion this disease can cause marked restriction of abduction of the shoulder joint with pain on abduction. There

are usually other findings present. If coronary occlusion or angina pectoris is at all suspected, it is imperative that it be ruled out before any local form of treatment to the shoulder is instituted.

Diaphragmatic irritation, either from pleuritis on the superior surface or irritation on the inferior surface (especially blood in the peritoneal cavity) causes reflex pain in the shoulder.

Hiatus hernia may cause pain in the shoulder.

Gall Bladder disease may also cause shoulder pain and should be ruled out by examination.


### Summary

Some of the lesions of the subacromial region and cervical plexus causing shoulder pain are discussed, with emphasis on simplified treatment by procaine infiltration. Most of these can be satisfactorily carried out by the general practitioner.


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*Recommended*


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# OIL EMBOLI FOLLOWING ATTEMPTED CRIMINAL ABORTION

## A Case Report*


By: George E. Eddins, M. D.; Robert Frost, M. D.; Charles W. Steele, M. D., F. A. C. P.; and Irving Goodof, M. D., F. A. C. P.


This 33-year-old married female was admitted in coma to the Central Maine General Hospital at 11.45 p. m. on December 22, 1949. A sketchy history was obtained from a friend who stated the patient had felt faint a half-hour prior to admission and subsequently she fainted. A few more pertinent facts were obtained from the family physician and a consulting orthopedist. One month prior to admission the patient was in another hospital because of an accident in which she fell striking on her buttocks and lower back. At that time a pregnancy test was positive. At 9.00 p. m. on the day of admission, she was examined by a consultant orthopedist relative to the low back injury. Vaginal examination done in conjunction with the physical revealed no pathology other than the cervix and vagina were compatible with pregnancy. There was no bleeding. At 11.45 p. m. she was admitted in coma.

*Physical Examination:* Temperature 98°; Pulse 112; Respirations 36; blood pressure 100/54. On admission, the patient was in coma, perspiring freely with rapid, forceful respirations. No evidence of external violence and no rash or petechiae were noted. No acetone, alcohol or uremic odor was demonstrable on her breath. There were intermittent clonic convulsive movements of the extremities which were otherwise flaccid. Trismus of the jaw was present. No stiff neck was demonstrable. Pupils were equal and reacted vigorously to light. Corneal reflex was absent. No nystagmus was observed. Deep tendon reflexes could not be elicited. Babinski sign was negative on each side. Ophthalmoscopic examination was not remarkable. Heart was not enlarged; rhythm was regular and murmurs were not heard. Both lungs were clear. The abdomen was soft and abdominal muscles were relaxed with no spasm. The fundus of the


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uterus was outlined just above the symphysis pubis. There was slight odorless vaginal bleeding which required a perineal pad. Pelvic examination showed a small amount of clotted blood in the anterior fornix. The cervix was soft, bluish and clean without erosion, laceration or evidence of direct trauma. A long shred of what appeared to be bloody mucus was hanging from the cervical os. Material for culture was taken from the endocervix.

*Admission Diagnosis:* 1) An attempted criminal abortion was suspected but could not be immediately confirmed.

2) Strychnine poisoning, or some other form of drug poisoning, was also suspected because of the coma and convulsions.

*Course in Hospital:* Stomach washings were clear but were sent for chemical analysis, nevertheless. The convulsive movements continued involving the entire body and lasted up to five minutes at a time. These were controlled with intravenous infusions with sodium pentothal, 1.0 gm. in 1,000 cc. 5% dextrose in distilled water. She received penicillin, streptomycin and tetanus-gas bacillus antitoxin. Twelve hours later the temperature was 103.6; respirations 42; and pulse 116. The blood pressure remained about 100/60. A nasal airway with oxygen was used. Suction of the nasopharynx was required at frequent intervals to remove accumulated mucus. During the ensuing 24 hours her respirations continued labored with occasional episodes of Cheyne-Stokes breathing. The clonic convulsive movements continued in spite of barbiturates, and the extremities became spastic where previously they had been flaccid. The left pupil was irregular and was smaller than the right pupil. There was generalized puffiness of the face. Temperature fell to 99.6. Several small areas appeared on the chin and shoulders which were suggestive of petechiae and which were not present on admission. The visiting staff was of the opinion that the clinical findings could best be explained on the basis of a diagnosis of oil or air emboli sustained at the time of the attempted criminal abortion. Poisoning was ruled out by chemical analysis of the stomach contents.

*Final Clinical Diagnosis:*

1) Incomplete criminal abortion.

2) Oil emboli to lungs, heart, brain, kidneys and skin.

*Laboratory Data:*

1. Blood: Hgb. 86%; wbc. 16,300 (8 hours after admission); polys 79; stabs 11; lymphs 9.

2. Catherized urine: S. G. 1.017; Albumin 30 mgm.%; wbc. 10-15 per hpf. rbc. 0-2 per hpf.

3. Spinal Fluid: Pressure not elevated; clear fluid — 1 lymphocyte per cu. mm.; 1 fresh rbc. and 2 crenated red blood cells per cu. mm. Total protein. 43 mgs.%. Normal sugar.

4. Blood sugar: 100 mgs.%; Blood NPN 31 mgs.%, blood calcium 10.2 mg.%. Inorganic Phosphorus 2 mgs.%.

5. Cervical Culture:
   1. Hemolytic and non-hemolytic staphylococcus albus.
   2. Hemophilus hemolyticus.
   3. Non-hemolytic Staphyloccus aureus.

6. Strychnine test on the stomach washings was performed using frog method but did not reveal a clear cut positive test.

## POST MORTEM EXAMINATION

The body is that of a well developed, well nourished, white adult woman. Pupils are round, regular and approximately equal; measuring 4 mm. in diameter. The ears, nose and mouth are not remarkable. The breasts are large, full and consistent with pregnancy. The abdomen shows an old, midline, well-healed, suprapubic surgical scar 14 cm. in length. No other external abnormal findings are noted.

*Thorax:*

The thoracic organs are normally located. A small amount of clear watery fluid is present in the pericardial cavity. The heart is of normal size, its external configurations are normal and the myocardium is firm, red-brown and shows no grossly recognizable pathological change. A patent but guarded foramen ovale easily admits a large probe. An opening is revealed approximately 6 mm. in diameter. The heart valves are normal in all respects. Coronary arteries are patent and show no evidence of sclerotic changes.

*Abdominal Organs:*

*Liver:* The liver is of approximately normal size and shows fairly prominent lobular markings with slight evidence of congestion. Normal gallbladder and bile ducts are demonstrated.

*Spleen:* This organ is enlarged to approximately twice normal size and the capsule is thin, slate-grey in color, and relatively tense. Section reveals prominent lymphoid follicles but the organ is not otherwise remarkable.

*Pancreas and Adrenals:* Normal in all respects.

*Kidneys, Ureters, and Bladder* were essentially normal in all major respects.

*Gastro-intestinal Tract* is not remarkable except for the absence of the appendix and the presence of a calcified node in the mesentery.

*Uterus:* This organ is enlarged and measures 15 cm. in diameter. The cervix shows no evidence of laceration but is soft, patulous and easily admits the tip of a finger. Minor erosions completely encircle the os. When the uterus is opened through its posterior surface it is found to contain a fetus and placenta with intact amniotic membranes and the usual amount of amniotic fluid. Anterior to this pregnancy there is a plaque-like mass of clotted blood measuring 12 cm. in diameter and 4 cm. in thickness which is not adherent to the lining of the uterus and is apparently relatively recent. Opening the uterus further reveals the lining in the right anterior portion to show an area of separation extending throughout the length of the uterus and relatively linear in appearance. There are a few small areas of endometrium which are skipped in this separation, but for the most part it forms a tract 6 to 8 mm. wide and extending from the endocervix to the dome. In the fundus, a small mass of clotted blood is firmly attached to the endometrium.

*Head:* The skull is of the usual thickness and entirely intact with no evidence of fracture or other pathological change. The dura is not remarkable and the brain externally shows the usual configurations. Section of the brain reveals minute

petechiae scattered throughout the white and gray substance in all areas of the cerebrum and cerebellum. There is no particular distribution of these petechiae. The largest one found measures 2 mm. in diameter while others are faint, minute and hardly discernible.

*Pituitary:* The pituitary is increased to approximately twice normal size, which is consistent with the stage of pregnancy and the history of several preceding pregnancies.

Examination of dural sinuses and the base of the skull, including the middle ears reveals no pathologic change.

## MICROSCOPIC DESCRIPTION

*Brain:* The brain shows the usual general architecture. Examination of small vessels, however, shows the vessels themselves to contain numerous globular spaces, suggesting the architecture of fat droplets. Surrounding these vessels, in many areas, are large accumulations of fat dropules or at least globular structures strongly suggesting the possibility of fat. In some areas these droplets are contained within macrophages which they have almost completely replaced. This picture is seen in all sections of the brain examined and involves almost all of the blood vessels which can be found. The vacuoles have spread around the blood vessels primarily and are present in only a few areas within the brain substance itself. There are areas of hemorrhage around some of these vessels and in a few areas there is beginning ingestion of pigment by macrophages. The perivascular areas also show pronounced edema, in which are included large numbers of vacuoles, identical with those described above.

Special stains of sections of the brain, cut by the freezing method, reveal them to take up the Scarlet Red and Osmic Acid Stains, which are used for the demonstration of fat, or fatty substances. The Osmic acid stain is more distinct, following treatment with alcohol, the so-called secondary staining of fat by Osmic Acid. This suggests that the character of the fat more closely resembles palmitic and stearic acid fats than oleic.

*Lungs:* The lung shows a moderate degree of emphysema. There are focal areas of atelectasis with infiltration by lymphocytes and polymorphonuclear cells. The blood vessels in the lungs, especially the smaller ones, contain globules identical with those seen in the brain.

*Liver:* Normal general architecture and histology is found but no significant pathology is noted.

*Spleen:* The spleen shows diffuse hyperplasia, dilatation of sinusoids and active lymphoid follicles. Some of the vessels and sinusoids contain vacuoles similar to those described above in the brain and the lungs.

*Kidney:* Kidney shows normal general architecture and glomeruli and tubules are not remarkable. Occasional vessels contain vacuoles similar to those described in the brain. The vessels in general are congested.

*Heart:* The heart shows degeneration of occasional muscle fibers and infiltration with neutrophils. The small branches of the coronary arteries, mainly those of capillary size, contain vacuoles identical with those described above in other organs.

*Adrenal:* The adrenal itself is not remarkable but the periadrenal small vessels contain moderate numbers of globular vacuoles similar to those seen in other organs examined.

*Pancreas:* The pancreas is within normal limits. There is slight lipomatosis. The smaller vessels here likewise contain moderate numbers of vacuoles similar to those described in other organs.

*Uterus:* Sections of uterus, taken in several areas, show no changes other than those consistent with pregnancy.

## FINAL ANATOMICAL DIAGNOSIS

*Primary:*

Intrauterine pregnancy (approximately 2 months).
Traumatic separation of endometrium.
Clotted blood in uterus.
Fat emboli in cerebral and pulmonary vessels.
Fat laden macrophages in perivascular regions of brain.
Congestion of posterior portions of lungs.
Patent foramen ovale.

*Accessory:*

Pulmonary emphysema.
Hemangioma of liver.
Healed wound of abdominal exploration.
Calcified nodule in mesentery.

## Discussion

The signs and symptoms presented by this patient and the clinical course were entirely consistent with oil emboli to the brain and to the other vital organs. The unusual features were the almost immediate loss of consciousness and the early appearance of severe convulsive seizures; and, of course, these were both easily understandable when the pathologist was able to demonstrate a patent foramen ovale.

In retrospect it would now seem possible to reconstruct the sequence of events as they must have taken place during the latter part of the evening prior to admission of this patient to the hospital. The pathological findings would indicate that the endometrial lining was lacerated when the catheter or other hollow instrument used in the attempted criminal abortion was inserted through the endocervical canal into the body of the uterus. It is logical to further assume that an oily type of irritant, similar to those commonly used on the European Continent to produce abortion, was then injected forcefully through the catheter or hollow cannula into the uterus; and it is believed a substantial quantity of this mass found its way into the venous blood stream by way of the venules which were opened up at the time the laceration to the endometrium was sustained. The oil globules were carried up from the pelvis by way of the inferior vena cava into the right auricle, and from there, a substantial number passed directly through the patent foramen ovalae into the left auricle and from there passed into the left ventricle and thence out through the aorta to the heart muscle, the brain, spleen, liver, kidneys and skin, while the remainder passed out through the right ventricle and pulmonary arteries to the lungs.

It is well known, of course, that oil droplets can pass through the lung capillaries into the pulmonary veins and from there can be carried through the left heart and eventually to the heart muscle, brain, kidneys, skin, etc.; but ordinarily severe respiratory signs and symptoms predominate in the beginning while the signs and symptoms referable to the heart, central nervous system and other vital organs come on later and are less intense and dramatic in their onset.

Inquiry has revealed that oil pastes have been used quite extensively and for a long time in Europe as a means of producing criminal abortion. Although

they have not been employed nearly as much in this country to produce abortion, still their use is far from unheard of in America. The authors are of the opinion that some type of oil paste must have been injected, under pressure, into the body of the uterus after the catheter had been inserted into the uterine cavity and it is their belief that some of this oily mass did obtain entrance into the venous blood stream by way of venules that were opened up in the rent in the endometrial lining of the uterus.


### Summary

1) The case history and pathological findings of a case of attempted criminal abortion has been presented.

2) Oil emboli were demonstrated in the brain, heart, lung, kidney, and capillaries at autopsy. These findings strongly suggest that an oily mass of some type was injected into the uterine cavity as the abortion producing irritant and that some of the oily mass gained entrance to the venous blood vessels through the laceration demonstrated in the endometrium.

3) The presence of a patent foramen ovale made it possible for a substantial amount of this oily mixture to pass directly from the right auricle into the left auricle and from there to be carried to the coronary, cerebral, kidney and skin arteries, arterioles and capillaries.


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# THE CANCER SERUM FLOCCULATION TEST EMPLOYING THE PENN ANTIGEN*

Julius Gottlieb, M. D., F. A. C. P., Pathologist (Honorary), and Vieno L. Kangas, M. T.

In the May 14th, 1950, issue of the *New York Times* in the Science in Review column,[1] the Penn Serum Test for Cancer was evaluated by Stuart W. Lippincott of the United States Public Health Service. He appraised it as the most promising of the general tests for cancer so far reported. This test is being subjected to a rigid evaluation by the Public Health Service. This is of interest to the writers, in view of our work on the Penn Antigen Serum Test[2] in which 119 cases of malignancy were studied, together with 21 normal controls and 76 other cases involving various diseases, as indicated in the tabulations marked "Diagnoses — Non-Malignant." The latter group included eight cases of pregnancy, four cases of malaria, eleven cases of tuberculosis in various stages and sites, one case of brucellosis, two cases of infectious hepatitis; the remaining being isolated cases as indicated in the chart.

The antigen was prepared in Dr. Penn's laboratory at the University of California, as follows.

### Preparation of Antigens

#### The Technique as Outlined by Dr. Penn

The lipoid fraction was obtained from human sources, chiefly cancerous liver. The latter was ground up and extracted repeatedly with acetone. All acetone extracts were pooled and placed in a refrigerator for 48 hours. A precipitate, presumably phospholipoids and saturated fats, formed upon standing in the cold and was removed by filtration. The acetone-soluble material then was freed of the solvent under vacuum at approximately 70° C. One gram of the lipoid residue was triturated with 10 ml. of horse serum and sufficient physiological saline solution added to make 100 ml. of emulsion. 2 ml. of preservative (Merthiolate, Lilly) was added in the ratio of 1:5000.

### Equipment and Technique

#### *Equipment*

1. Serum tubes 100 mm. long with an approximately uniform inside diameter of 11 mm.
2. A water bath for inactivating serum.
3. A water bath at 37° C.
4. A centrifuge with a speed of over 2000 revolutions per minute.
5. 5 and 10 cc. pipettes. Kahn serologic pipettes, one for each serum tested.
6. For the preparation of the 0.85% saline, use C.P. NaCl and triple distilled water.

### Serum

1. Centrifuge blood if necessary. Decant at least 0.5 cc. of clear serum which should be stoppered and kept in refrigerator at all times except when in use.
2. Inactivate at 56° for 30 minutes. If serum is to be used the following day, inactivate for ten minutes at 56°. Strongly hemolyzed serum or contaminated serum may not give an accurate result.

* From the Department of Pathology, Central Maine General Hospital.

### Test

1 cc. of antigen is blown into 50 cc. warm (40°) physiologic saline (0.85% NaCl). Mix by pouring from one beaker into another about five times.

Arrange four tubes.

| | 1. | 2. | 3. | 4. |
|---|---|---|---|---|
| Antigen | 1.0 cc. | 0.5 cc. | 0.5 cc. | 0.5 cc. |
| Serum | 0.2 cc. | | | |

Mix serum and antigen in tube #1 and allow 3 minutes at room temperature.

Then add:

| | | | | |
|---|---|---|---|---|
| Saline | 0.8 | 0.5 | 0.5 | 0.5 |

Mix and carry 1 cc. from tube #1 to tube #2 through tube #4, discarding 1 cc. from the 4th tube. Shake vigorously for 3 to 5 minutes. Incubate at 37° for 20 minutes. Centrifuge for 4 minutes at 2000 RPM.

### Reading

++ Coarse particles with clearance.

\+ Fine particles with clearance.

± Coarse particles with partial or no clearance.

— Fine particles evenly distributed, or no particles, without clearance.

In the initial stages of the work, samples of sera from patients of known diagnosis were sent to Dr. Penn by mail. This proved unsatisfactory, in view

## A STUDY OF FLOCCULATION TESTS IN 119 MALIGNANT CASES

| | POSITIVE | | | | NEGATIVE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A′ | B′ | C′ | D′ | Totals | + | – |
| Lips, tongue, mouth | 4 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 10 | 4 | 6 |
| Face and neck | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 5 | 4 | 1 |
| Parotid | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Lungs and bronchi | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 |
| Esophagus | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Stomach | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 0 |
| Cecum | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Colon | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 3 | 1 |
| Sigmoid | 0 | 3 | 1 | 2 | 2 | 0 | 0 | 0 | 8 | 6 | 2 |
| Rectum | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 6 | 2 | 4 |
| Breast | 2 | 2 | 4 | 3 | 0 | 1 | 1 | 2 | 15 | 11 | 4 |
| Cervix | 12 | 3 | 2 | 0 | 7 | 0 | 0 | 0 | 24 | 17 | 7 |
| Uterus | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 5 | 1 |
| Vulva, urethra | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 1 |
| Prostate | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 0 |
| Ovaries | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Lymphosarcoma | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Melanosarcoma | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 |
| Chronic lymphatic leukemia | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Gall bladder | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Pancreas | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Kidney | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Bladder, urinary | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| Osteogenic sarcoma | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Nonclassified malignant tumors | 0 | 1 | 2 | 3 | 1 | 0 | 0 | 0 | 7 | 6 | 1 |
| | | | | | | | | | 119 | 87 | 32 |
| | | | | | | | | | | 73% | 27% |

| | | |
|---|---|---|
| A | No metastasis, with radiation | A′ |
| B | No metastasis, no radiation | B′ |
| C | With metastasis, with radiation | C′ |
| D | With metastasis, no radiation | D′ |

DIAGNOSES (Non-Malignant)

| No. | Flocculation Test Pos. | Neg. | |
|---|---|---|---|
| 18 | + | | Osteomyelitis |
| 19 | + | | Hepatic Cirrhosis |
| 20 | + | | Fractured calcaneus |
| 35 | + | | Neurofibroma, Dermatitis |
| 39 | + | | Fibroid Uterus |
| 44 | + | | Brucellosis |
| 45 | | — | Cholecystitis |
| 46 | + | | Advanced Tuberculosis |
| 47 | | — | Advanced Tuberculosis |
| 48 | | — | Advanced Tuberculosis |
| 50 | + | | Epididymitis |
| 55 | + | | Clinically benign lesion of Penis |
| 61 | + | | Lues |
| 62 | | — | Diabetes |
| 72 | | — | Diabetes |
| 67 | | — | Intestinal Flu |
| 80 | + | | Benign Prostatic hypertrophy |
| 85 | | — | Pelvic Inflammation |
| 86 | | — | Pyometritis |
| 87 | | — | Cholecystitis |
| 92 | | — | Mastoidectomy |
| 97 | | — | Hypertension |
| 98 | | — | Adenomatosis Prostate |
| 21 | | — | Procidentia |
| 22 | + | | Pregnancy |
| 89 | + | | Pregnancy |
| 91 | | — | Pregnancy |
| Total | 13 | 14 | |

of the fact that the sera became cloudy. It was then attempted to ship sera by mail encased with dry ice. This also proved unsatisfactory. It was thought that the sera may have become frozen and that the active substance was thus destroyed. A third attempt was made by having the antigen mailed to our laboratory and the work performed with the assistance of Dr. Penn's technician.* The work reported is based on this last attempt. The other data is excluded. The data outlined in Charts #1 and #2, employing cases only where the diagnosis was carefully established. In Chart #1, only cases of malignancy are listed and sub-divided into groups A, B, C and D and their respective primes, indicating as to whether or not there are metastases with radiation, metastases without radiation, or no metastases with radiation. An over-all picture indicates that of the 119 cases of malignancies, 87 showed a positive flocculation test and 32 negative. There seems to be no correlation between those that were radiated or showed metastases and those that showed no metastases and no radiation. Percentage-wise, 73% of the malignancies were positive and 27% negative. A summary of 25 apparent normal controls shows a negative flocculation test in 24 cases and a positive in one, indicating an accuracy of 95.4%. It may be that the case assumed to be normal represented an incorrect diagnosis. Of the 76 other diseases studied, 37 showed a positive flocculation, 39 a negative, indicating an inaccuracy of 49%.

* Leonard Cohen.

## Summary

1. A total of 212 cases were studied.
   a. 119 cases presented evidence of malignancy.
   b. 76 cases of disease other than malignancies.
   c. 22 cases showed no evidence of disease.
2. a. Flocculation tests were positive in 73% of cases diagnosed as malignant.

DIAGNOSES (Non-Malignant)

| No. | Flocculation Test Pos. | Neg. | |
|---|---|---|---|
| 2 | | — | Parotitis |
| 27 | + | | Duodenal ulcer |
| | | — | Duodenal ulcer |
| 61 | + | | Bronchopneumonia |
| 102 | | — | Fractured left wrist |
| 105 | | — | Pregnancy |
| 108 | + | | Pregnancy |
| 109 | + | | Pregnancy |
| 117 | + | | Pregnancy |
| 118 | | — | Pregnancy |
| 104 | | — | ? Bronchogenic Carcinoma (Not proven) |
| 106 | + | | Cirrhosis of liver |
| 114 | | — | Latent lues |
| 122 | + | | Contused kidney |
| 123 | | — | Infectious hepatitis |
| 125 | | — | Infectious hepatitis |
| 124 | | — | Uterine fibroid |
| 110 | | — | Anemia following gastric resection for Carcinoma six years ago |
| 111 | | — | Pelvic infection ? ? Ca. Lung |
| 112 | + | | Perforated gastric ulcer |
| 126 | | — | Infectious Mononucleosis |
| 127 | + | | Multiple Sclerosis |
| 129 | | — | Hypertensive heart disease |
| 137 | + | | Malaria |
| 138 | | — | Malaria |
| 139 | + | | Malaria |
| 140 | | — | Malaria |
| Total | 11 | 16 | |

b. 49% showed positive flocculation tests in diseases other than malignant.

c. Of 22 cases showing no disease, flocculation tests were negative in 95.4%.

## Comment

These results are in apparent contradiction to the high valuation recently placed by the United States Public Health Service pre-survey estimate. It may be that refinement in technique and a modified antigen have been more recently employed.

It is only fair to state that the studies from which this evaluation has been made are presumably based on over 5000 case studies. It is hoped that the pre-survey estimate will be proven correct and that the further studies will be made upon proven cases of malignancy, non-malignancy and established diagnosis in control cases.

The studies made by the present authors suggests a correlation between rapid sedimentation rates and those giving positive serum tests. Control cases should therefore be chosen among those diseases that yield normal sedimentation rates, as well as rapid

DIAGNOSES (Non-Malignant)

| No. | Flocculation Test Pos. | Neg. | |
|---|---|---|---|
| 142 | | — | Chronic endocervicitis |
| 144 | | — | Benign Tumor (Osteoma Rib) |
| 158 | + | | Pleural exudate ? No evidence of malignancy |
| 167 | + | | Empyema |
| 169 | | — | Gastro-colic fistula ( ? Ca.) |
| 182 | | — | Glioblastoma multiforme |
| 186 | + | | Pancreatic cyst |
| 187 | + | | Obstructive Jaundice |
| 188 | + | | Ulcerative colitis |
| 193 | + | | Verruca Acuminata |
| 194 | | — | Capillary Hemangioma |
| 195 | + | | Chronic cystic mastitis |
| 196 | + | | Chronic cystic mastitis |
| 207 | + | | Chronic cystic mastitis |
| 213 | + | | Tuberculosis |
| 214 | | — | Tuberculosis |
| 215 | | — | Tuberculosis |
| 216 | + | | Tuberculosis |
| 217 | + | | Tuberculosis |
| 218 | + | | Tuberculosis |
| 219 | | — | Tuberculosis |
| 220 | | — | Tuberculosis |
| Total | 13 | 9 | |
| Others | 13 | 14 | |
| | 11 | 16 | |
| | — | — | |
| | 37 | 39 | 76 Grand Total |
| % | 47.3 | 52.7 | |

| Not Included |
|---|
| 160, 190, 191, 221, 130, — because of insufficient data |

| No Disease | |
|---|---|
| 14, 15, 16, 17, 21, 36, 37, 65, 66, 68, 69, 77, 78, 88, 90, 93+, 95, 96, 116, 131, 132, 133 (21—) (1+) | |
| Pos. | Neg. |
| 1 | 20 |
| % 4.6 | 95.4 |

GRAND TOTALS

| | Cases | Pos. | Neg. | % Correct |
|---|---|---|---|---|
| Malignancies | 119 | 84 | 31 | 73.0 |
| Other Disease | 76 | 37 | 39 | 51.0 |
| No Disease | 21 | 1 | 20 | 95.4 |
| | 216 | | | |

sedimentation rates. Further data on this aspect could be of great interest and might perhaps throw some light on the basic phenomena of sedimentation rates. It is suggested that the further studies with this test include correlation studies with sedimentation rates.


References

(1) Kaempffert, Waldemar: *New York Times* "Science in Review," May 14, 1950.

(2) Penn, H. S.: A Heterologous Principle in Human Cancerous Liver, Its Effects Upon the Brown-Pearce Tumor. *J. of Immun.*, Vol. 54, No. 1, Sept., 1946.


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Tuberculosis is the most prevalent disease in China. In the city of Peking, with a population of about 2,000,000, the number of deaths from tuberculosis is about 4,600 a year. For the whole nation, with a population of 450,000,000, the total number of deaths from tuberculosis is about a million annually. In other words, about twice as many people as live in Minneapolis die from this disease each year in China. Most of the tuberculosis patients are between 20 and 30 years of age, the most productive period.—Kenneth K. D. K'an, M. D., *Journal-Lancet*, April, 1950.

# CLINICO-PATHOLOGICAL EXERCISE

## Presentation of Case

*Chief Complaint:* This 67-year-old housewife was admitted to the hospital on August 5, 1950, complaining of crampy pain in the left lower abdomen of five days' duration.

*Present Illness:* Previously well and healthy and without symptoms other than intolerance to greasy foods which caused gas and indigestion and some constipation over a period of years. There had been no significant gastro-intestinal symptomatology. Five days before admission she began for the first time to notice crampy pains, at first intermittent and later more constant, in the left lower abdomen. These were localized, associated with some abdominal distention, and did not radiate. They had continued to the time of admission, gradually growing more severe and constant, and in the two days prior to admission, required hypodermic injections for relief. During the four days before admission there had been a temperature elevation of 99.0° to 101.0° daily, without chills or sweats. There had been no nausea or vomiting, although she had lost appetite. There was no weight loss over the period of the past year.

*Past History:* Revealed a similar episode occurring nine months previously; with crampy, intermittent pains in the left lower abdomen, associated with fever and constipation and lasting for about two weeks. This subsided spontaneously without specific treatment and there had been no further difficulties until onset of present illness. A cholcystostomy was done because of gall stone colic in 1920. A recent Graham Test at another hospital had demonstrated the presence of many recurrent biliary calculi.

*Physical Examination:* Blood pressure 130/80. There was no acute distress. Slowed thinking, somewhat low voice, thin hairline and absence of eyebrows were noticeable features, along with suggestive suborbital puffiness and dry skin. Head, eyes, ears, nose, throat — not remarkable. Tongue was moist, not coated. There was no adenopathy of neck, axillae or groins. Thyroid gland was not palpable. Trachea was in midline. Lungs clear and resonant throughout, without dullness or rales. Heart was of normal size, position and rhythm; no murmur was audible. Rate was 64. Abdomen revealed marked tenderness with spasm in the entire left lower quadrant; no masses palpable. The liver, spleen and kidneys were not enlarged or tender. There was an old irregular right upper quadrant scar, well healed, of the previous gall bladder operation. Peripheral blood vessels were somewhat hardened. There was no edema or venous abnormalities. Pelvic examination was not remarkable.

*Laboratory Data:*

RBC 3,550,000; Hgb. 11 gms., 71%. Color Index 0.98.

WBC 7,600: Differential; 74 Polys, 2 Stabs, 20 Lymphs, 3 Eosins, 1 Baso.

Sedimentation rate, Westergren method, 45 mm. in one hour.

Urine: Yellow, cloudy, neutral, SG 1.015, no albumin, sugar or acetone present. Sediment was not remarkable.

Serology was negative.

Two stools gave a negative guiac test.

*X-ray Examination:* 8/14/50. Barium Enema:

"There is temporary delay to the passage of the barium in the proximal portion of the sigmoid. This delay is seen to be caused by an anular constricting lesion measuring about 8 cms. in length, with sharply defined overhanging margins at the proximal and distal limits. The mucosa of the bowel shows an absence of the normal pattern in this area. Although not as freely moveable as normal, this portion of the sigmoid was not completely fixed to the surrounding tissues. Due to the patient's discomfort and because of the presence of the lesion in the distal bowel, the proximal portion of the colon was not completely filled with the barium. As far as could be seen, however, there is no other lesion in the large bowel.

*Note:* There are multiple facetted stones in the gallbladder."

*Hospital Course:* With bed rest, icebag to the left lower quadrant, Procaine, Penicillin (600,000 units daily) there was response clinically with gradually decreasing tenderness and spasm in the abdomen and with lessening of the daily fever to normal. At the time the Barium Enema was accomplished, sigmoidoscopy revealed normal mucosa in the lower sigmoid proximal to the recto-sigmoid junction. No abnormalities were noted. A palpable and movable mass, corresponding to sigmoid colon, in the left lower quadrant was noted; this was rather tender on deep palpation. An operation was carried out the following week.

### Differential Diagnosis

*Dr. William V. Cox:* This case, as presented, looks somewhat simple but perhaps it isn't. We have the history of a woman 67 years of age admitted to the hospital presumably for a second attack of abdominal pain; the first one having occurred nine months before. The present illness indicates an intolerance to

greasy foods and it was understood that she had a cholecystotomy some years ago and now has a recurrence of stones. Indigestion and gaseous difficulty may be accounted for by the presence of cholecystitis and cholelithiasis. This attack began with crampy pain in the abdomen which became worse as time went on. The history sounds as though there was partial intestinal obstruction which came on with the pain or shortly thereafter. There was elevation of temperature to 99° or 100° daily at home, with chills and sweats. The first observation, therefore, might be that it was dietary in origin; but the fact that it continued several days probably indicates that it was not. It is notable that there was no weight loss over the past year. This fact should be kept in mind in making a diagnosis. It would seem that the previous attack was similar to the present one and probably due to the same pathology.

Physical examination revealed a woman in good general condition for her age, except for the abdominal pathology. Blood pressure was normal, or somewhat low for her age. Pulse rate was normal. On physical examination there was no evidence of any pathology of the genito-urinary tract. Pelvic examination was not remarkable. Laboratory data was remarkably normal except for the fact that the red count was a little low. It is notable that two stools gave a negative guiac test.

I believe that two features are very important.

1. That patient had no weight loss.
2. Two stool examinations were negative for blood.

X-ray revealed a mass apparent in the proximal end of the sigmoid, with delay in the rate at which barium passed and difficulty in completely filling the remainder of the large bowel. In the X-ray report there are three important features:

1. As far as we can determine, no second mass was present in the large bowel above the lesion described.
2. The mucous membrane in this area does not show a normal pattern. So, there is an intrinsic lesion with change or destruction in the mucous membrane pattern.
3. There is also the picture of the sharp overhanging borders at the two ends of the lesion, and this is typical of malignancy. The bowel looks smooth above the lesion and is not distended.

On bed rest, ice bag to abdomen, and penicillin therapy the tenderness subsided and it was apparently possible to palpate a movable mass in the region of the sigmoid which showed a lesion on X-ray examination.

In considering the differential diagnosis, there are several which come to mind, some of which we can discard quickly.

1. This patient presents some inflammatory reaction in the left lower quadrant which, on bed rest and penicillin, subsided. Although the white count was not elevated, the temperature was, so we can feel there was some inflammatory reaction going on. The amount of intestinal obstruction had apparently subsided, as evidenced by X-ray. We must first consider carcinoma of the bowel, since this is a favorite site. There are two things against this. First, there was lack of bleeding. A large carcinoma in this section usually bleeds, either microscopically or grossly. This patient had no bleeding of which we were aware.

Secondly, there was no weight loss during the year before hospital admission. Although many features point to this diagnosis, these two factors would seem to indicate some other diagnosis.

2. Then would come to mind a diverticulitis with some degree of perforation. In this area a diverticulitis could present a similar picture and differentiation is somewhat difficult with X-ray. However, in this case the X-rays seemed to show no evidence of diverticula above or below the lesion. It is unusual to have one area of diverticulosis or diverticulitis without other lesions being present.

3. Tuberculosis of the large bowel. This is not a favorite site; the small bowel being a much more common point. Here again, a single lesion without any other evidence is unusual.

4. A metastatic lesion could infiltrate bowel and even give the picture of a break in the normal pattern of mucous membrane. There is no evidence of such a lesion being present, as there was no other lesion known to be present in the body. Also, when it was possible to palpate this lesion, it was fairly movable and the X-ray report states that the lesion was unusually movable for its size.

5. An extrinsic lesion, such as a carcinoma of the ovary or a lesion in the bladder, might be considered but there is no evidence of urological disturbance or ovarian tumors.

These are the diagnoses I would consider seriously, and although the diagnosis might be more difficult than it would appear, I would think the patient had a carcinoma of the sigmoid with reaction through the bowel wall or a small perforation which gave an abscess around the bowel wall which subsided with bed rest and penicillin therapy. The X-ray findings are very typical of carcinoma of the large bowel.

*Dr. Clark Miller:* Any comments?

*Dr. Ralph Goodwin:* Is it too high a lesion for a granuloma?

*Dr. William Cox:* The position is against the lesion being a granuloma.

*Dr. Merton Flanders:* Could you have a lesion originating in the mucosa which would not give rise

to findings in the stool, something like amoebic dysentery?

*Dr. William Cox:* It would be unusual to have such a lesion without some signs and without finding bleeding. If we do a colostomy on a patient with a low carcinoma, they nearly always continue to bleed; in diverticulitis, bleeding usually stops, following a colostomy which puts the involved bowel at rest.

*Dr. Merton Flanders:* Does a so-called regional enteritis get this far?

*Dr. William Cox:* That is usually accompanied by a lesion or lesions in the small bowel.

*Dr. Merton Flanders:* How movable is the bowel in this location?

*Dr. William Cox:* This, of course, varies with the individual. The mobility of the sigmoid depends upon the length of its mesentery and this varies greatly in different individuals.

*Dr. Clark Miller:* Dr. Branch, would you like to give us the answer?

### Pathological Discussion

*Dr. Charles F. Branch:* I believe that the differential diagnosis, as presented by Dr. Cox, has covered all practicable possibilities. There are one or two other suggestions that might be entertained and some of these are too far fetched to warrant serious consideration.

In a 67-year-old woman, one would ordinarily assume that endometriosis need not be considered but I have seen cases of massive pelvic endometriosis which had escaped detection, or at least surgical intervention, during the individual's biologically productive years, which after the menopause presented serious surgical complications, as dense scar tissue began to contract and distort the pelvic contents. Such a sequence of events is, of course, most unusual and from the lesion in this roentgenogram, I am sure that the radiologist and other members of our panel would agree that this picture could not be wholly the result of endometriosis.

Another entity which should be mentioned as a likely etiological factor is polyposis. When one considers that various authors give the incidence of polyposis as 5% to 15% in people over 40 years of age, and that histologically at least 15% of these are malignant, one is forced to the conclusion that any of the first entities to be considered in elderly people with this lady's general symptomatology is polyposis, —possibly accompanied by some severe secondary inflammatory reaction. Even the most benign polyp may twist on its pedicle, slough at its base, and give rise to all sorts of local secondary phenomenon,— including lethal hemorrhage. Associated with multiple polyposis, we not infrequently have found varying degrees of fixation of the colon. It also is of interest to remember that carcinoma of the colon in approximately 30% of the cases is accompanied by one or more polypi, which may be either benign or malignant. The roentgenogram in this case does not suggest a polypoid etiology, nor were any found in the specimen.

The possibility of an ulcerative colitis with an obstructive lesion in a female of this age and with this clinical history is almost as absurd as suspecting schistomiasis. However, in passing I would like to call attention to the fact that occasionally a male has come to the attention of our service with his ulcerative colitis in varying degrees of control, but with considerable pericolonic scarring. I remember one lad who we were privileged to observe in the middle 30's who had a colon massively dilated throughout its entire course from a point six inches from the anus. There was so much old fibrosis and so many mucosal synechiae arranged in a crisscrossed manner, that what fecal material was eliminated had to pass through this fenestrated membrane. The entire extension of the sigmoid portion of this colon was very firmly encased in dense scar tissue.

The actual findings in this case were as follows:

Specimen consisted of a segment of large bowel approximately 10 cms. in length, surrounded by adjacent mesocolon and fibro-fatty tissue, showing marked engorgement of the vessels and dense induration. The entire specimen measured 15 x 10 x 4 cms. On opening the bowel, the normal mucosa at either end abruptly gave way to an irregularly indurated mucosa, in the center of which is an ulcer crater 2.5 cms. in diameter, having scalloped edges. Adjacent to the ulcer the wall is thickened to as much as 2.5 cms. and this protrudes into the lumen of the bowel as an overhanging edge. The wall gradually narrowed toward one end where the normal mucosa appeared somewhat edematous. The fatty tissue adjacent to the ulcer contained a crater-like abscess which, on section, was filled with hemorrhagic and necrotic material. This area measured approximately 4 cms. in diameter. The induration of the bowel appeared to be covered by a cuff of normal appearing bowel wall at one end, while at the opposite end the induration extended to the line of resection. The cut surface of the ulcerated area had a firm, white, granular appearance, as of malignant epithelial tissue. Section through the accompanying mesocolon and fibro-fatty tissue revealed multiple areas of small abscesses, averaging 0.8 cms. in diameter. The peritoneal surface was covered with fresh fibrin.

Microscopic examination revealed sections taken from large bowel showing an abrupt change of normal mucosa to that showing malignancy. Specimen taken from ulcer area showed a lack of mucosa with floor of ulcer made up of necrotic membrane containing many acute inflammatory cells. Extending

throughout the wall of muscularis were atypical and distorted glands lined by one or more layers of columnar cells showing nuclear variation and lack of polarity. The atypical glands were seen extending throughout the bowel wall to the adjacent fat. They showed adenomatous pattern as well as some papillary projections. Large areas of necrosis were also seen in the tumor area. There was some accompanying fibrosis with the tumor infiltration. Tumor cells were seen in lymphatic channels of the bowel wall. Only one lymph node was present and did not reveal a metastatic tumor; however, tumor cells were found in a lymphatic adjacent to the lymph node. Section of the adjacent tissue revealed an increased fibrosis of the surrounding fat with evidence of old and recent hemorrhage as well as necrosis and an infiltration of inflammatory cells, mostly neutrophils. Some tumor cells were seen in this area.

*Pathologic Diagnosis:* Adenocarcinoma, with extension through bowel wall to adjacent tissue. Multiple abscesses of adjacent mesocolon.

In closing this discusison, I would like to further emphasize the point made by Dr. Cox that this patient was admitted with symptoms of some degree of obstruction and that when that obtains in relation to colonic carcinoma, the prognosis is infinitely worse than when obstruction is absent. Several groups of statistics within recent years tend to show that in non-obstructive carcinoma of the colon, approximately 52% enjoy a five-year survival, while in those patients coming to operation in the obstructive phase, only 26% live through the five-year period. Furthermore, those statistics are not perceptibly altered by equal degrees of metastases observed at the time of operation or by histopathological grading.

It is generally acceded that the major factors bearing on this unhappy phenomenon have to do with the following factors which work to the distinct disadvantage of the cancer patient suffering from obstruction. In the first place, damage to the intestinal wall with increased permeability and easier access of the neoplastic cells to dilated vessels and lymphatics. Secondly, hyperplasia of the intestinal musculature proximal to the obstructive lesion, with a pronounced massaging and traumatic effect of this portion on the obstructing margin of the neoplasm, with an obvious tendency to greatly increase the spread of the tumor. Thirdly, the inflammatory swelling and edema of the adjacent tissues with subsequent breakdown of mechanical protective factors, with an increased or enhanced permeability for the cancer cells and the effects of their lytic enzymes. These factors and many others weigh heavily against the patient suffering from an obstructing cancerous lesion, and all serve to again point up the fact that early discovery, early diagnosis and treatment can materially lower the mortality from this disease, even with our present limited armamentarium.

*Dr. Milan Chapin:* I think it would be of interest to have Dr. Rock site the findings at operation.

*Dr. Daniel Rock:* As I remember, there was a fairly large abscess encountered in the left lower quadrant with a large amount of foul pus. The mass was well fixed posteriorly along the brim of the pelvis but there was some movement present and with great difficulty, the operator was able to separate it. There was no evidence of metastasis in any other portion of the bowel or the liver.

*Dr. William Cox:* Was this a point of perforation?

*Dr. Daniel Rock:* It was a peri-sigmoidal abscess containing about 100 cc. of pus.

*Dr. William Cox:* Was Mikulicz's procedure used?

*Dr. Daniel Rock:* Yes, it was.

*Dr. Waldo Clapp:* Dr. Miller has told us that he can make a differential diagnosis between carcinoma and diverticulitis better than the surgeon at operation.

*Dr. Clark Miller:* I think most surgeons will agree. I would like to present this chart to illustrate the five main points in the roentgenological differentiation between the two. It is often difficult and sometimes impossible, but in this case it was clear cut by X-ray.

1. The length of the lesion. In diverticulitis there is usually a long lesion; in carcinoma a short lesion. This did not hold true in this case as the lesion was 10 cms. in length.

2. In diverticulitis we are apt to see the diverticula. In carcinoma, they are likely to be absent. However, we may get a diverticulitis without the appearance of diverticula in the X-ray because of inflammatory reaction closing off their mouths. Conversely, with carcinoma we may have co-existent diverticulitis.

3. This is an extremely important and reliable sign. The proximal and distal limits of the lesion in diverticulitis are apt to fade off. Here we see the distal limits, which are well-defined, along with sharp overhanging edges and a narrowed lumen. The proximal end gives the same picture in those other views. The lateral view reveals the proximal and distal limits very clearly. We never see this picture with diverticulitis—sharp limits with normal bowel above and beyond.

4. Contractility of the bowel. This is not a reliable differential sign because a segment containing diverticulitis may be as rigid as in carcinoma.

5. Changes in mucosal pattern. This sign, together with #3 is the most reliable one, but may be hard to demonstrate.

*Dr. William Cox:* How well does point #3 stand up in diverticulitis of long standing with perforation or abscess formation, associated with a malignancy?

*Dr. Clark Miller:* We usually can see one or the other limit, sharply defined. It is unusual to have a

*Continued on page 401*

# EDITORIAL

## Special Bulletin on Regulations Covering the Doctor Draft

Because of the many requests for information relative to the doctor-draft, I am devoting the Editorial Page in this issue of the JOURNAL to the following information, recently received from the Washington Office of the American Medical Association.

*Priorities.* On October 16, physicians in the first and second draft law priorities were required to register. *First priority:* Former ASTP or V-12 students or others deferred during World War II to continue their education and who subsequently served less than 90 days. *Second priority:* Men similarly deferred, but who served more than 90 days and less than 21 months. Although both priorities registered the same day, Selective Service has decided to process the first priority first. Registration dates for all other physicians not yet 50 years old and not in military reserves will be scheduled for some time prior to January 16, 1951.

*Induction Dates.* Prospects are that inductions in large numbers will not begin until late in December. *Target date for completion of processing, except for physical examinations, is December 1.* Physical examinations of first priority men need not be completed until December 15, with second priority to follow. Orders to report for induction—in most cases coming after December 1—still allow the registrant 21 days to settle his personal affairs.

*Order of Induction.* State and local quotas will not be established on the basis of total registration as in the general draft, but *on the basis of the number of registrants in the various categories.* This is to insure that the men the law was designed to procure—government-educated and others with little or no service—will be called up first. Within any category, the *youngest* will be called first. When other World War II veterans are required to register, they will be broken down into sub-categories, based on amount of service measured by full months. If it is necessary to reach into these groups, the age factor again will be applied in determining order of induction.

*Volunteers.* Army is undertaking to offer a reserve commission to every registrant at the time he takes his physical examination and before his induction. However, physicians can volunteer for any military service up to the time he is inducted. When informed a man has received a reserve commission, or gone on active duty, Selective Service will place his name in a special classification and will not consider him draft-eligible. Under the law, men involuntarily inducted may not receive the $100 monthly pay bonus which goes to volunteers.

*Physical Examinations.* State Selective Service directors are arranging with Army area commanders to conduct *special physical examinations* for physician, dentist and veterinarian registrants. These will begin some time prior to November 15. As noted above, at this time Army will offer commissions, and a lenient policy will govern the granting of waivers by the Army for physical defects which would not interfere with the performance of a medical officer's duties. Neither Army nor Selective Service officials would state what action would be taken with a registrant who persisted in declining a commission under these circumstances. However, under the law he could be inducted and made to serve in the ranks.

*Deferments.* Volunteer Advisory committees to local Selective Service Boards will generally make these decisions, but boards have final authority and need not accept verdict of committees. The Presidential order says registrants shall be deferred as hardship cases "only if it is determined that (their) induction into the armed forces would result in extreme hardship and privation to a wife, child, or parent with whom he maintains a bona fide family relationship in their home . . ." The order says deferment because of essential service to community shall be granted only "when his induction would cause the availability of essential health services to fall below reasonable minimum standards" in his community.

*Classifications.* Non-deferred physicians will be classed as 1-A. Grouped with 1-A for purposes of induction will be conscientious objectors to combatant service, with the classification of 1-A-O. Deferred classes follow in this order: 4-E, conscientious objectors to combatant or non-combatant service with

armed forces. I-D, registrants who are or become members of military reserves following registration. 2-A, those whose service to their community has been found to be essential. 3-A, those whose induction would cause undue hardship to family. 4-A, sole surviving son of a family, some of whose other sons have died in military service. 4-F, deferments for physical and mental causes or for other reasons not acceptable to military. 5-A, registrants who reach their fifty-first birthday. 1-C, men on active military duty or who subsequent to registration complete the required period of military duty.

*Important Dates in Draft.* Following schedule represents order in which Selective Service hopes to operate induction machinery—*October 18;* state directors report to National headquarters total numbers of physicians, dentists and veterinarians registered. *October 23;* local boards begin classification, with emphasis on first priority, whose classification is to be completed not later than November 15. *October 31;* reports to be filed on total registration, with breakdown on numbers found to be available and non-deferred. *November 15;* special physical examinations start not later than this date, examinations for first priority to be completed before December 15. *December 1;* local boards to mail in "Reports of Availability and Summary of Classification," containing all pertinent information on registrants except possibly for physical examination data.

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*Clinico-Pathological Conference—Continued from page 399*

carcinoma which shows abnormal bowel fading off into normal bowel. When the two are associated, there is usually something which leads us to suspect the presence of malignancy.

*Dr. Charles Branch:* Would this hold up in the other diseases spoken of as possible differential diagnosis? For instance, endometriosis which is bound down and encased in a solid mass of tissue; would this not show sharply demarkated edges?

*Dr. Clark Miller:* I think that annular carcinoma is the only lesion with this characteristic picture.

*Dr. William Cox:* What would be one or two points of differentiation in carcinoma and tuberculosis?

*Dr. Clark Miller:* I have never seen tuberculosis in this portion of the large bowel. I don't know what it would look like.

*Dr. Charles Branch:* When tuberculous lesions occur in this portion of the large bowel, the rest of the picture is usually so massively involved that these represent only terminal phenomena.

*Dr. Charles Steele:* How many stools were examined?

*Dr. Milan Chapin:* Two.

*Dr. Charles Steele:* This case, showing a known anemia of moderate severity, presents an interesting clinical picture with no history of melena or other types of blood loss and with two stools reported negative for occult blood by the laboratory. Nevertheless, at postmortem examination the pathologist was able to demonstrate a large ulcerating neoplastic lesion in the distal part of the large bowel of the type that usually bleeds.

As a matter of fact, this ulcerative tumor mass in the large bowel probably did bleed enough, from time to time, to account for the lowered haemoglobin and red blood count reported by the laboratory. It is very unusual to get a marked hyperchromic anemia in a well nourished female patient who has been on an adequate diet, without actual blood loss or without abnormal blood destruction such as might occur with disorders such as familial hemolytic jaundice. Therefore, it would seem in order here to once again point out that the finding of an anemia of this magnitude in an elderly, well nourished female is usually a most important finding and in this instance it was a more reliable diagnostic laboratory finding than was the absence of occult blood in the stools.

*Dr. Milan Chapin:* I first thought she had myxedema in addition to the bowel lesion.

*Dr. William Cox:* Would the degree of ulceration indicate to you that she should have been bleeding?

*Dr. Charles Branch:* I did not see the lesion, but from the descrpition and histologic sections, I would think so.

*Dr. Paul Wakefield:* I would think she probably would have.

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# COUNTY SOCIETY NOTES

## Cumberland

A regular meeting of the Cumberland County Medical Society was held on September 28, 1950, at the Maine General Hospital. The meeting began with a clinic which was highlighted by a report on a series of meetings on Cortisone and ATCH recently held at the Peter Bent Brigham hospital in Boston. This report was given by Dr. Stanley Herrick, Medical Resident, who packed a tremendous amount of material into a very short space of time and everyone felt he had done an excellent job.

Following the meeting we were entertained, if you could call it that, by Dr. Clark Miller, Radiologist, from Lewiston, who discussed certain medical aspects of atomic warfare. His talk certainly left us with no particular reassurance and no comfort in our present situation. It also left us with the feeling that we were ill prepared in this region for defense against atomic warfare and stimulated the desire for further information and for the formation of a definite workable plan.

With this in mind, it was moved and seconded that the Secretary devote the November meeting to a panel discussion on the organization of a defense set-up against atomic warfare in Portland and Cumberland County.

Dr. Charles E. Skillin of Portland, was elected to membership in the Society.

RALF MARTIN, M. D.,
*Secretary.*

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## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, Maine, on September 13, 1950. There were nine members and one guest present.

A notice was read to the society concerning Air Ambulance Service. The society appointed a Committee on Hospital and Professional Relations, consisting of the following members: Drs. Raymond E. Weymouth, Chairman, R. F. Russell, Philip L. Gray, M. A. Torrey, and W. Edward Thegan. Dr. Weymouth reported to the society on the activities of the society's committee on civilian deefnse. Dr. Torrey reported relative to the latest developments in civilian defense and doctor draft legislation.

Dr. Ward A. Albro of Bangor, gave an interesting talk on "Cysts and Sinuses of the Neck," which was followed by discussion.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

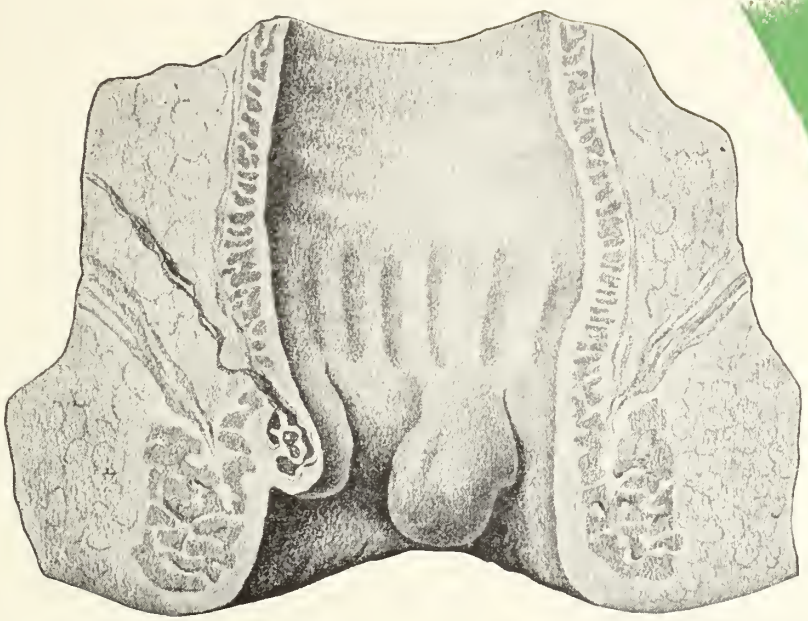
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## Lincoln - Sagadahoc

A regular meeting of the Lincoln-Sagadahoc Medical Society was held at The Ledges, Wiscasset, Maine, on Monday, October 2, 1950, at 6.30 P. M. There were fifteen members present.

Dr. John Cooper from the Surgical Service of the Pratt Clinic, Boston, spoke to the group on "Treatment of Carcinoma of the Kidney." Lantern slides demonstrated many of these tumors and the best approach to them. X-ray therapy does not seem to help as they are deep seated and radio resistant.

NEIL L. PARSONS, M. D.,
*Secretary.*



## Bowel Regulation in Hemorrhoidal Conditions

When there is a tendency toward hemorrhoids, when hemorrhoids are present or after hemorrhoidectomy—when avoidance of straining is desired—Metamucil's smooth, demulcent action conforms to accepted bowel management.

Metamucil softens the fecal content, stimulates peristalsis by supplying plastic, bland bulk and encourages easy, gentle, regular evacuation without irritation or straining.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

# METAMUCIL®

## Piscataquis

The annual meeting of the Piscataquis County Medical Association was held at the Blethen House, Dover-Foxcroft, Maine, September 21, 1950.

Mr. W. Mayo Payson, Executive Secretary of the Maine Medical Association was present. He spoke relative to various matters concerning the Maine and American Medical Associations.

The following officers were elected:

President, Stanley Marsh, M. D., Guilford.

Vice-President, Linus J. Stitham, M. D., Dover-Foxcroft.

Secretary-Treasurer, Norman H. Nickerson, M. D., Greenville.

Delegate to the Maine Medical Association, Ralph C. Stuart, M. D., Guilford. Alternate, Guy E. Dore, M. D., Guilford.

Legislative Committee: A. M. Cardc, M. D., 1953; Linus J. Stitham, M. D., 1952; George C. Howard, M. D., 1951.

Censors: Linus J. Stitham, M. D., 1951; Harvey C. Bundy, M. D., 1952; John B. Curtis, M. D., 1953.

N. H. Nickerson, M. D.,
*Secretary.*

## New Member

### Cumberland

*Charles E. Skillin, M. D.,* 131 State Street, Portland, Maine.

# NEWS AND NOTES

### Pediatric Institute for General Practitioners

The second Pediatric Institute for General Practitioners was held at the Central Maine General Hospital in Lewiston on September 22, 1950. About thirty general practitioners from throughout the State attended.

Sponsored by the State Department of Health and Welfare, the Institute was arranged by Dr. Ella Langer, Director, Division of Maternal and Child Health, and carried the endorsement of the Maine Medical Association.

Dr. Albert W. Fellows of Bangor, State Chairman of the American Academy of Pediatrics, welcomed the group. Dr. Henry C. Thacher, Chief of Pediatric Services, Central Maine General Hospital, presented interesting cases, assisted by Dr. Russell Morissette, Associate Pediatrician, and Dr. P. B. Koehler, Pediatric Resident.

In the afternoon Dr. Clement A. Smith, Associate Professor of Pediatrics, Harvard Medical School, Associate Physician, The Children's Hospital, Boston, addressed the group on "care of the new-born infant." Dr. Jack Metcalf, Research Associate, Harvard Medical School and The Children's Hospital, Boston, spoke on "kidney diseases in childhood," and Dr. Dana G. Prugh, Psychiatrist, The Children's Hospital, Boston, concluded the Institute by speaking on "recognition and treatment of the common psychiatric disorders of childhood."

All speakers answered questions from the flooor in a general discussion period.

### Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

#### Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

#### Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

#### Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

#### Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

# *Proceedings*

## NINETY-SIXTH ANNUAL SESSION

## Maine Medical Association

## House of Delegates

### POLAND SPRING, MAINE

### June 18, 19, 20, 1950

The First Session of the House of Delegates of the Maine Medical Association convened at the Poland Spring House, Poland Spring, Maine, on Sunday, June 18, 1950, at three o'clock in the afternoon, with the President-Elect, Dr. Foster C. Small of Belfast, as Chairman of the meeting.

CHAIRMAN SMALL: The meeting will please come to order. The first order of the business is the roll call by the Secretary.

(The Secretary then called the roll of delegates present; twenty-seven delegates responded.)

CHAIRMAN SMALL: The number of delegates present is sufficient for a quorum. Therefore, we will declare this session legally opened for the transaction of whatever business may come before the meeting.

I will first appoint a Reference Committee and a Committee on Resolutions, in case there should be any during the session.

I will appoint Dr. Clyde I. Swett of Island Falls, Dr. William A. Purinton of Bangor, Dr. Charles R. Geer of Portland, Dr. Paul S. Hill, Jr., of Saco, Dr. Walter G. Dixon of Norway, Dr. James H. Crowe of Ellsworth.

I will also appoint the Nominating Committee, one delegate from each Councilor District, one to be named as Chairman. From the First District, Dr. James M. Parker of Portland, Chairman; from the Second District, Dr. Wedgwood P. Webber of Lewiston; from the Third District, Dr. Wesley N. Wasgatt of Rockland; from the Fourth District, Dr. Arch H. Morrell of Augusta; from the Fifth District, Dr. James H. Crowe of Ellsworth; from the Sixth District, Dr. P. L. B. Ebbett of Houlton.

The duty of this committee is to draw up the members of the Standing Committees, for 1950-1951, and report to the second meeting of the House of Delegates on Monday at 5.00 P. M.

At this time, I am going to ask for a report of the Chairman of the Council, Dr. C. Harold Jameson, on the Council activities and the recommendations of the Budget for the coming year.

DR. C. HAROLD JAMESON, Rockland: At two previous gatherings, I have read to you the proceedings of several meetings, and it is not my intention to repeat that unless you insist.

The first group of meetings was reported at the November meeting, 1949, and the second report was made at the April meeting of the House of Delegates at Augusta this year. The meeting on April 5th, included considerable discussion of various matters, upon which no votes were taken, and I do not intend to review those matters.

However, I should like to tell you of the actions that were discussed and voted upon, definitely, at the April 5th meeting.

The first subject was in respect to affiliation of the hospital of the Veterans' Hospital at Togus, with the University of Vermont. At that time, it was voted by the Council to accept the Committee recommendation that the affiliation of the Veterans' Hospital at Togus, with the University of Vermont, be approved unconditionally, but it was suggested, also, that inasmuch as the University of Vermont stands to profit by this affiliation in terms of more opportunity for resident training for its graduates, a request be made that the University of Vermont make it possible for an increased number of Maine boys to be admitted to their medical school, that is, the University of Vermont.

The second subject discussed was the matter of hospital and physician relationships. It was voted by the Council not to accept the Committee (Medical Education and Hospitals) recommendation that a special committee be appointed to meet with the Committee of the Maine Hospital Association and make recommendations for the conduct of financial relationships between hospitals and physicians in the State. That had, principally, to do with such matters as roentgenologists and anesthetists employed by hospitals in which, not infrequently, there is some controversy as to how they should be recompensed.

The Council felt that these matters should be settled at the local level.

The third subject was in regard to the opportunity for medical education for Maine boys. The Council voted to approve the recommendation that letters be written to the Deans of nearby medical schools, inquiring if anything can be done to make it easier for Maine boys to get a medical education, and that the Committee take care of this correspondence.

Again, in reference to this Report of the Committee on Medical Education and Hospitals, and referring particularly to the second part of that report, it was voted not to accept the recommendation that medical schools be asked for their reactions to a plan whereby Maine would defray the entire cost of medical education for Maine boys in return for an increased number of admissions.

Next, to accept the recommendation that the University of Vermont be granted increased training facilities for residents at Togus and that they in turn be asked to reciprocate by providing increased opportunities for Maine students desiring to study medicine.

Next, to accept the recommendation that the Maine Legislature be asked to provide scholarship funds for needy medical students.

The next subject is in respect to the Bingham Fund. The Committee recommended that there be appointed a Special Committee of the Maine Medical Association to study the applications and effectiveness of the Fund, as it applies to Maine. It was voted that the committee itself act in the capacity of an investigating body.

A report of the Public Relations Committee by Dr. Frederick T. Hill was discussed at considerable length and it was voted that the health surveys to be conducted by the Health Council of Maine be approved, and also to approve the addition of lay speakers to the Speakers' Bureau.

Next, it was requested that the Council recommend to the Maine Hospital Association that members of the staff of their component hospitals be members of the Maine Medical Association, and it was voted that the Maine Hospital Association stipulate that members of the staff of component hospitals of the Maine Hospital Association be members of the Maine Medical Association, this not to include residents or interns.

There was a discussion of a suggestion by Dr. Drake that the Maine Medical School Committee be rejuvenated, that having sort of fallen to pieces since Ed Herlihy passed away.

It was voted by the Council that a new Medical School Committee be appointed by the President-Elect, Dr. Small.

The last thing was with reference to a Grievance Commit-

tee. Dr. Cobb, Chairman of the Committee on the Revision of the Constitution and By-Laws, stated that the members of his committee has discussed the matter and felt that such a committee should be omitted in the State for a little while. The Council voted for an indefinite postponement of such a Committee in the State.

That concluded the matters taken up at that meeting.

Then, a meeting of the Council was called for the sake of reviewing the budget, on May 17th, and presenting it, in consideration of a request by the delegates that they have a chance to see the budget before a late moment, when they must vote upon it. That matter, and a few other matters, were discussed at the May 17th meeting.

The 1950-1951 Budget, a summarized financial statement of the Maine Medical Association and JOURNAL for 1949-1950 were presented to each member of the Council, which after discussion, voted that a budget for 1950-1951 totalling $24,725.00 be approved by the Council and submitted to this House of Delegates for action. Attached, also was a copy of the proposed budget and financial summary sheets, which have been sent to the County Delegates and Alternates; you have all been provided with these and you have had a chance to look them over.

There was a discussion relative to the amount charged for commercial exhibit space. Dr. Carter advised the Council that for such space, we are now charging $5.00 a foot; that is the rate at the present meeting for the exhibitors. It was voted to increase the cost of the space to $6.00 per foot, which is commensurate with the fees charged at most conventions for a similar service.

Then, relative to the illustrative plates in the JOURNAL, Dr. Carter was instructed to talk with Dr. O'Donnell, Chairman of the Editorial Board, relative to limiting the number of illustrative plates per article. It has seemed, in some cases, that these plates, which are expensive, have been used somewhat too freely perhaps, and with some coöperation by the individuals who submits an article, some of the plates could be cut down, and without too much loss, and the expense thereby reduced.

There was a letter to Dr. Goodwin from the Maine Cancer Society, stating that the Maine Osteopathic Association had requested the Cancer Society for exhibits at their annual meeting, and requesting his opinion on such a move. The Council voted that they made no objection to the demonstration by the Cancer Society at the Annual Meeting of the Maine Osteopathic Society. I do not understand that personally, members of our Cancer Committee took this material to the Osteopathic meeting. I don't think that that was the case; rather that certain data, charts, ec., in part supplied by the American Cancer Society, should be made available for its teaching value at the meeting of the Osteopathic Society.

There was a suggestion that a scholarship fund for Maine boys studying medicine be raised by voluntary donations from the members of our Society. It was voted to refer the matter to the Committee on Medical Education and Hospitals.

This completes the details of these last two meetings of the Council prior to which you have had two full reports.

It doesn't seem necessary, to me, as Chairman of the Council to review for you the figures on the Budget, which you now have in your hands. So that I think my duties are discharged.

CHAIRMAN SMALL: Thank you, Dr. Jameson. You have heard the report of the Chairman of the Council. The Chair awaits your pleasure relative to its acceptance.

DR. O'DONNELL, Portland: I move the acceptance of the report of the Chairman of the Council.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: The House of Delegates has had two copies of the report of the Budget Committee, which have been forwarded to you; you have had ample opportunity to study the figures as they were submitted to you. Therefore, perhaps it is not necessary to go all through the data. That is one of the advantages of having had it previous to the time of the Annual Meetings. However, the Chair awaits any questions that you may direct to us, if you so desire at this time.

DR. KINGHORN, Kittery: I move the acceptance of the budget as recorded in the budget figures submitted to us.

This motion was duly seconded.

DR. VICKERS, Bangor: In this budget for 1950-1951, the budget for special Committees has been cut from $462.00 in 1949-1950 to $200.00 in 1950-1951. Now, the money to run the Committee on Education is in that Budget, and that is not enough money; if you want to do anything with the Educational program, it can't possibly cover it.

I don't know the purpose in cutting the budget from about $500.00 to $200.00, and before the budget goes through, I feel that much consideration should be given to the fact of increasing this, or else having a Committee that is limited and can't do much of anything because of lack of funds.

It may be that there is an explanation to this, but I think that at least it should be increased to what it was before.

CHAIRMAN SMALL: Have you any information on this, Dr. Carter?

DR. CARTER: The reason that was cut from $500.00 to $200.00 is due to the fact that this year we spent $177.13 for Special Committees, and it was felt that possibly that amount might do for next year; that is the reason that it was cut.

DR. VICKERS: The Chairman of that Committee, I know, has spent money from his own budget. It is a question, apparently of bookkeeping. I think that money spent by a Committee should be shown up in the Budget as being spent by that Committee.

I believe that there should be a specific budget put up by the particular committee, unless the Council and the Delegates feel that it should be withdrawn from the budget of Mayo Payson. I think that the activities of the Committee should be increased, and not decreased, if the committee is to function, and function as it should. Certainly, the amount of $500.00 in our budget is not too much; we may not use it all, but there may be occasion to use it. I know that I have sent telegrams which I have paid for out of my own pocket, and I know other men who have done the same thing. So that I think we ought to write it into the budget as a special item in the Budget.

CHAIRMAN SMALL: What figure would you suggest?

DR. VICKERS: Certainly, you could set up a figure of $500.00, and not have to take it out of Mayo's budget; I think that is what it should be.

CHAIRMAN SMALL: Then do you wish to submit that as an amendment to Dr. Kinghorn's motion?

DR. KINGHORN: I will withdraw my motion, and make a new motion. I move that the Budget be accepted, with the addition of $500.00 to the Budget for the Education Committee.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: The next report on our agenda of business is that of our Executive Secretary, Mr. Mayo Payson.

MR. PAYSON: In the past my report as Executive Secretary has been summarized and condensed so as not to be too much a repetition of Committee or Council efforts. It is obvious that, in the main, I only carry out policies that have first been adopted by the House of Delegates and then brought to more specific action by your Committees or your Council.

In the beginning, I believe that no one in the Association had any very clear idea of what an Executive Secretary was expected to do; if they did have they didn't convey that idea to me. There were obvious problems but the proper methods of meeting them were not at all obvious, particularly to an outsider not familiar with medical matters or procedures.

There was in my mind serious doubt then whether the majority of doctors wished to do anything about public relations, or whether, in the main, they preferred to keep on with their full-time job of practicing medicine and let the rest go hang. There seemed also to be the concept that an

Executive Secretary should get out, do the public relations work, and not bother busy doctors who had more important things to attend to.

Within the past month a doctor, who I would like to believe is a good friend of mine, said that the Association should have a man in this position who could do all these things without referring to the doctors or taking up their time. To me the very essence of this program of public relations is the interest of the doctors that the public be better served and that the methods to be used originate with and have the approval of doctors. Any other approach seems to me a false front with no structure behind it.

If the doctors are to win their fight against socialization of their profession it can only be done by the combined efforts and thought of doctors working together in House of Delegates, Council, and Committees. It is common practice and experience for one man alone facing a proposition to consider how that proposition will effect him as an individual; working in a group, as on a Committee, he is apt to give more thought to the common good and less to his personal position.

So it has been my job, as I conceived it, to persuade the doctors, through Committees, to originate projects that are for the benefit of the people and ultimately of the profession, and to put those projects into operation. This was to be done not to make a job for someone to be Executive Secretary but because this was the way, and the only way, for the medical profession to fight the very real battle it now has on its hands, and it is a shirker's answer to say that this is a small State, politically safe, and whether we do anything or not doesn't matter. Any single state in a national affair of this magnitude is a small part, and any single state has just as much right as Maine to say that one state doesn't matter.

Did you ask why, if Committees of doctors are to do this work, is there any need for an Executive Secretary? That's a fair question and I think it has a sound answer. Even though Committee work has to be done by doctors, there is a very practical limit to the time they can give, and some man, such as an Executive Secretary, can do leg work, both mental and physical, to save the doctors time. A pat example occurred recently in the case of the Committee on Medical Education and Hospitals. That Committee wanted to know about the workings of the Bingham Foundation. I knew and used the means of approach whereby Drs. Proger and Ryder of that Foundation could be obtained to come here, sit down with the Committee, and discuss the problem. The same Committee needed to know about the administration of the Merritt-Garcelon Fund. I could drive to Brunswick, get information from the Bursar of Bowdoin College, have the Clerk of Courts send a copy of a decree to the Chairman, and get all the salient facts before the Committee for their consideration. The Committee forms its conclusions from its own studies; I do the leg work.

Since the results of Committee work are the product of the Committees' own efforts and my leg work I have hesitated in the past to report what has been done because it seemed to me to savor of grabbing off credit and trying to build myself up at the expense of the Committee which had done the effective part of the work with my help, but I am proud of the fact that Committees which never met and performed no function when I started work for you are now performing a real service and are accomplishing much, and for that reason I am reporting fully what my work is although it will duplicate reports made by those Committee Chairmen.

There are two major aims which I conceive the Maine Medical Association to have in this line of work; first, the maintenance of a cohesive organization which can make itself felt when action is taken; second, determination of what action should be taken to the advantage of the public and the Association. The advancement of the members in scientific knowledge is not my province.

Along the lines of the first point, to maintain a cohesive organization, the House of Delegates decided two years ago to consider changing the Association from a voluntary one to a corporation and to have a committee study the advisability of that change and of such other changes in Constitution and By-Laws as would make for a Society better informed in advance on its own business and more smoothly operated.

A non-profit corporation, with its clearcut lines of operation, as a matter of law, seems to have definite advantages over a voluntary association, with its ill-defined and little understood rights and liabilities. The whole trend in organizations which transact any business is away from the quasi-partnership type of voluntary association, with liabilities of individual members, to the corporate type with its whole liability resting on the legal entity, the corporation. Any lawyer is fully aware of these things.

As to the Constitution and By-Laws much of the detail work of revision is naturally to be done by the Executive Secretary. It was necessary to get the Constitution and By-Laws of several other states, study them, cull out what seemed like good working arrangements, and submit them in writing to the Committee. Then when a meeting was held, all Committeemen were informed as to changes up for discussion and the conclusions could be those of the Committeemen.

I became aware two years ago of the Board of Supervisors adopted by Colorado for their disciplinary body and mentioned it in an early letter to your Committee. I corresponded with Harvey Sethman, the Executive Secretary of Colorado, and obtained the mechanics of its setup. Later the House of Delegates of AMA recommended the adoption of such a Board by every State Society and it seemed my duty at least to submit the matter to the Committee and at the same time to take it up with your general counsel, Mr. Locke, so that if the Committee approved the idea generally we would have in process a working out of details so that the new Board would not be conflicting with your Advisory Committee, which, with Mr. Locke, has done such splendid work in protecting you in malpractice cases.

Mr. Locke conceived that the new Board, if hastily adopted and not carefully thought out, might give rise to malpractice suits. The Committee decided not to press the matter and since then I have had conferences with Mr. Locke exploring the matter further and considering ways and means whereby the Maine Medical Association could have the benefit of what has proved to be a splendid public relations action without the detriment of any additional malpractice cases.

It was, of course, my function to attend the meetings of this Committee, note their sentiments on different proposals, and, in accordance therewith, prepare the agreed material. Then, after the House session in Augusta, I prepared the final draft in accordance with instructions, following as nearly as possible the order of the Old Constitution and By-Laws.

On the second point, the work of your Committee on National Education has occupied much of the time of my office. The physical job of repackaging and distributing the thousands of pamphlets sent us from Whitaker & Baxter would have been difficult for me, but my secretary, Miss Gooch, is a rugged girl and she managed. After we had repacked and mailed thousands of pieces, we persuaded Whitaker & Baxter to send in quantities direct to the doctors on this Committee in different sections of the State.

To help at all intelligently in the work of this Committee it has been necessary for me to read omnivorously the material which comes across my desk daily and books and related reports which make up the mass of material against socialized medicine. There are, for example, each week, two bulletins from Dr. Lawrence in your Washington office which set forth new bills introduced, old bills in process, comments and criticisms of their purport; two releases each week from Dr. Lull in Chicago, giving official AMA views on these legislative proposals and comments, or the general campaign against socialized medicine. There are books, such as John T. Flynn's "The Road Ahead," and Dr. Palyi's "Compulsory Medical Care and the Welfare State," which were required reading. Some of the Hoover Task Force Reports, particularly relating to medical and hospital services, also were required reading. If you think we litter your desks with material — good, bad and indifferent — you should see the lot that comes to me, and I don't dare throw mine in the wastebasket until I have glanced through it.

In addition to the pamphlets, it was necessary to have speakers ready and willing to accept engagements before Service Clubs and any other groups willing to listen to the arguments against socialized medicine. Obtaining men locally, who were willing to speak, was the function of doctors in the

different County Societies. For the purposes of this campaign it was not sufficient that a speaker say that socialized medicine was no good and he was opposed. In order that our speakers be well grounded enough to understand and discuss the subject intelligently it became necessary to select and acquire material from which the prospective speaker could get a fair working knowledge of the subject and prepare his talk. The pamphlet material being sent out for quantity distribution is too abbreviated for this purpose. We did acquire material which seemed suitable and then briefing sessions were held on different Sundays in Bangor, Waterville, Lewiston and Portland, all of which I attended. The idea of the briefing session was not to prepare a set speech for all, but rather to point out certain salient points that were sound and refer to source material for them.

The Committee built up a Speakers' Bureau of around 48 people. This office has circularized all of the Service Clubs in those sections of the State where we had speakers available. The Grange has also been circularized recently. I do not know how many times they have talked on the subject but I do know that I find a much better informed public opinion here in Maine now than existed a year or two ago.

The campaign for resolutions against socialized medicine has perhaps lagged here, although more have been adopted than appear in Whitaker & Baxter's official list.

Recently one of the top men from that office came to Maine as a part of the campaign in this section of the Country. For three days I visited with him the state officers of the following organizations:—

American Legion
American Legion Auxiliary
Veterans of Foreign Wars
Veterans of Foreign Wars Auxiliary
State Chamber of Commerce
Junior Chamber of Commerce
Business and Professional Women's Clubs
Maine Federation of Women's Clubs
Daughters of American Revolution
State Grange
Maine State Bar Association

I wish you would remember any of these organizations of which you may happen to be a member. The purpose of these visits was to obtain a mailing list of the officers of local units and permission of the state officers to circularize them for resolutions in opposition to socialized medicine. This is done by letter on the (simulated) stationery of the Maine Medical Association and over the signature of your President, Dr. Ralph Goodwin. Mr. McFadden, Whitaker & Baxter's executive, was completely successful and at this date the letters have been mailed to the Grange, American Legion, Business and Professional Women's Clubs, Chambers of Commerce, and the Junior Chambers of Commerce. The remainder are to be mailed according to a pre-arranged schedule. I asked you to remember the names of some of the organizations and if you are connected with or a member of one, a little plug from you might be the push necessary to add to the thousands of resolutions already on file against socialized medicine.

Other states have made spectacular achievements in this campaign of National Education but I feel very strongly that the Maine Medical Association has made steady and sound progress in this work to the end that both the profession and the public are much better informed than a year ago.

I have not mentioned the work of the Public Relations Committee separately in this report because most of its efforts have been integrated in the work of the Committee on Education.

Your Plan for Voluntary Insurance started rather slowly this year, but in the last three months there have been most encouraging sales of this coverage. There are now fourteen companies offering the Plan, some of them rather passively. It has been necessary for me to read and check carefully ten policies which have been submitted this year for approval. They must provide at least the coverage promised by the Maine Plan.

A pamphlet of questions and answers on the Plan was prepared, printed and distributed to the doctors and used by the insurance companies in talking to prospects. We hoped the doctors would display these pamphlets in their offices because that would bring the insurance to the attention of the public and furthermore by its display the doctor tacitly gave the Plan his recommendation.

This seemed a good time to get more doctors behind their own Maine Plan as participating physicians. You may recall that some time had been spent by the Maine Medical Association on a Blue Shield Plan and in 1946 apparently the House of Delegates or the Council had voted to attempt to get enabling legislation in 1947. That being unsuccessful, the present Maine Plan, underwritten by commercial carriers, was adopted in 1948 after copy of the Plan had been sent to every member of the Maine Medical Association, and yet in May of 1949 our list showed only 38% of the membership supporting the Plan by their participation agreements.

I have made it my business at County Society meetings to urge participation in the insurance plan. You now have one county with 100% (Piscataquis, of course), and Lincoln-Sagadahoc Society stepped its participation up to nearly 90% on solicitation, so that Bath Iron Works employees could have any doctor in their locality. Androscoggin County stood behind their fellow member, Dr. Goodwin, as President, when he went about the State preaching voluntary insurance instead of compulsory. Androscoggin now has 76% and the State average is about 63%.

The Rural Health Committee has had two meetings this year. This Committee had had a rather baffling job. Maine is a rural state; rural areas are known to be lacking in medical service and yet this Committee has not been able to find any area of great deprivation in Maine. The Committee has again come up with the need for better local public health services, particularly in rural areas. This subject is very thoroughly covered by a report made in 1945 by Dr. Haven Emerson. There are bills in Congress to implement basic minimum local public health services through Federal grants-in-aid to states. Whether or not such Federal action will occur the Rural Health Committee believes that studies in this State should be carried through and legislation be proposed and backed to permit the formation of Health Districts so that a basic minimum of public health services may be established and carried on. To me this represents one of the very best pieces of work that this Association could undertake and it is one in which the assistance of the Woman's Auxiliary would be invaluable.

We published nine bulletins this year, sent them to all members. Going back over them I find that they put continuing emphasis on two propositions. The one receiving most mention was your Voluntary Insurance Plan, and you were urged to support it in the best way possible — by becoming a participating physician. The second may be generally described as the national situation. Some of the more prominent of the so-called Fringe Bills were explained and their undesirable features emphasized. The doctors were repeatedly urged to educate the public on the matter of socialized medicine so that the voters might meet intelligently the New Deal-Fair Deal challenge of taking this issue to the people. And, finally, it was pointed out that the only vote you are sure of is your own and that doesn't count in an election unless you cast it.

This in brief outline is a part of the work of an Executive Secretary's office as I conceive it should be done. I make no pretense that what has been done through these Committees is all my work but it is true that my efforts are so inextricably mingled in that it is not possible to sort it out.

You have facing you immediately the climax of your fight against government control of medical practice. Even if you win against a complete compulsory insurance plan, you will be confronted with evolutionary changes in the distribution of medical care which will only be satisfactory to you so far as you, the doctors of this country, help to plan and develop them.

The national situation is a complex of opposing forces. For the moment a national compulsory health insurance plan does not seem to be in prospect. The socializers' strategy appears to be to offer compulsory health insurance as their program but to save it for campaign purposes this Fall when

they will say that the Fair Deal friends of the people propose this boon to the common man but the forces of reaction and privilege in Congress prevent its passage.

On your part, AMA will sponsor a national advertising campaign costing $1,110,000 in October. Space will be purchased in every daily and weekly newspaper in the Country; twenty national magazines will be used; 300 radio stations have been contacted for time. The purpose is to crystallize and bring into sharp focus all the arguments which the doctors have been using so effectively for nearly two years. Undoubtedly, the purpose is not political, but it is most fortunate that this advertising campaign comes in October just before the November date when Congressional elections are held in most states.

Thousands of thoughtful people are joining the doctors in the fight against socialization and it behooves everyone to talk and vote against those who sponsor these un-American proposals.

Your success up to this point in opposing socialized medicine must not blind you to the fact that there is an almost universal demand for a better distribution of medical care. The Congressmen and Senators who are fighting on your side are prolific with measures to meet this demand without surrendering to the domination of government. No complete or satisfactory solution has been found yet. It is unfortunate but true that those people on the other side, who are not hampered by any notions about preserving the American way of life, are easily able to set up a plan which breaks completely with a free enterprise system and which on paper and in theory is perfect and ideal. Thoughtful people of experience know that it will not work, but it is a rugged job to explain that to the mass of voters who are sometimes fooled by glittering promises of something for nothing.

To those who see some need for improvement but who feel that it must fit into the American system, solutions are difficult, must be worked out slowly, and by evolutionary processes and not by revolutionary fiats. With all the best of luck in this fight it is still for the doctors to work and strive and plan for a system of medical care that preserves the integrity and independence of the profession, the high quality of medical practice, and still is eventually within the means of all the people. I see no other alternatives but these and the only good solution must be worked out by the understanding, cooperation, and leadership of the medical profession. Only if the doctors are willing to make this sacrifice in time and money can this fight eventually be won,—won by a system of medical care, wholly American, superb in quality, and adequate in distribution.

Chairman Small: Thank you very much, Mr. Payson, for your fine report. The Chair accepts your report, and recommends that it be recorded properly, unless there are any objections. Hearing no objections, it is so ordered.

The next report, which I am sure is of intense interest to all of you, is the report of the committee on Revision of the Constitution and By-Laws.

You have had two copies of that in the past at two different meetings of the House. I might say at this time, that I feel that you have been very well informed relative to the activities of your Association, by those letters and meetings.

At this time, I am going to call upon Dr. Stephen A. Cobb, Chairman of the Committee on Revision of the Constitution and By-Laws, to make his report.

Dr. Stephen A. Cobb, Sanford: The Committee on Revision of the Constitution and By-Laws was appointed at the June annual meeting at the 1948 session.

The Maine Medical Association is at the present time a voluntary association of all its members, a sort of partnership or joint enterprise. The question was raised as to whether it would not be better to have it organized as a non-profit corporation.

At the same time, it seemed useful to have a study of the existing Constitution and By-Laws, with the idea of improving or clarifying them where possible.

Because of the formalities necessary for any amendments to the Constitution, no action could be taken at the annual session in 1949, except to offer a motion for repeal of the Constitution and lay the motion on the table, to the annual meeting this year.

The Committee has held three meetings, and also has submitted proposed changes for discussion by the House of Delegates at its November and April meetings.

Studies of the Constitution and By-Laws of other States have been made, and the committee has discussed the features therein contained.

The committee has decided that there was much advantage to the formation of the corporation, and no detracting disadvantages.

We have recommended the revised Constitution and By-Laws, which have been mimeographed and sent to all delegates and alternates. If the members agree with the Committee on incorporating, this may be done by proper votes at this annual meeting, although under the law, the operation of the new organization may be postponed, giving some time for the legal formalities of forming the corporation.

The Association may vote to leave the time and change of the proper operation to the discretion of the Council.

I, therefore, suggest that the Revision of the Constitution and By-Laws be laid on the table until the meeting tomorrow, at which time the new Constitution and By-Laws, if there are any errors, or amendments, they can be made and passed upon, and adopted.

Also, at that time, whether we shall change the name of the Association to the Maine Medical Society, when incorporating, will have to be decided upon.

Chairman Small: Thank you very much, Dr. Cobb. You have heard the report and the recommendations of the Committee on Revision of the Constitution and By-Laws. What is your pleasure?

Dr. Kinghorn: I move that the Revision of the Constitution and By-Laws be laid on the table until tomorrow's session of the House of Delegates.

This motion was duly seconded, and was carried.

Chairman Small: We have a few Committee Reports that were not published in the June issue of the Journal. May we have the report of the Fourth District by Dr. Torrey?

Dr. Raymond L. Torrey, Searsport: We held nine meetings, and those meetings were of general interest. Two of the counties, at least, have been active in getting speakers against socialized medicine. Our President-Elect has taken the burden in the affair, too, and there have been a great number of talks by different lay people and to lay organizations on that subject. I think, also, that the average of our counties is rather higher than that of the State in the number of participating physicians to the prepaid medical care plan.

Chairman Small: Thank you, Doctor. We now have some special committee reports. For the Committee on Graduate Education, I will call upon Dr. Joseph E. Porter.

Dr. Joseph E. Porter, Portland: There is no report of that Committee, Mr. Chairman.

Chairman Small: The next on the agenda is the report of the Committee on Maternal and Child Welfare by Dr. Thomas A. Foster.

Dr. Thomas A. Foster, Portland: The Committee, as named, has not had a meeting, but, many members of that committee were members of the Study Committee established two years ago, to review the Child Health Services in Maine. I have in my hand, now, the fruits of that labor; it is about ready for the printer. I have, in the past, promised you it would be in the printer's hands. I may say that we have had estimates from two printing establishments, to publish the results of the Child Health Survey that was made. It will serve as a report of that committee. We hope, Mr. Chairman, that the Maine Medical Association will be able to bear some of the expense of printing this publication.

I should like to say here, Mr. Chairman, that we have a Committee of the New Born, under the Chairmanship of Dr. Whittier, and plans have been outlined by Stewart Clifford

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From where I sit *by* Joe Marsh

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"Listen," I says to her, "hear that squeak?" I started quiet-like across the kitchen and there it went again! "Joe Marsh," she laughs, "that is nothing but your suspender clips rubbing back and forth when you walk!" And darned if it wasn't!

*From where I sit, I'd been letting a little thing become a serious problem. Like some little difference of opinion or taste will start off a great big argument. I may prefer a temperate glass of beer with my dinner—while the missus likes tea—but we figure that no two people have exactly the same likes and dislikes. So, why get all "het up" about it?*

The moral is, check your suspenders —and check your temper when it comes to little things.

Joe Marsh

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to improve the conditions among new born babies. I don't know whether that committee has a report to make, but they have had meetings, and good meetings, too.

CHAIRMAN SMALL: I know you will join with me in thanking Dr. Foster for his report, and especially for the work that you and I know he and that committee have really accomplished for the benefit of the children and the welfare of the children of our State. I thank you, Dr. Foster.

Next, we are to have the report of Dr. Ebbett of Houlton, on the Amy W. Pinkham Fund.

DR. P. L. B. EBBETT, Houlton: The Pinkham Fund Committee has been rather inactive. We had a meeting in Waterville, at the Fall Clinical Session last year, at which time most of the members of the committee were present.

We had a conference with Mr. Wells of the Public Health Association, and at that meeting, he said he would make a survey of the Schools of the State and report to us as to when and where the undernourished children were, that is, in what schools, and also as to whom or what schools are furnishing lunches and pastcurized milk to the children in the schools.

I think that it was on May 19th that I received a letter from him asking me if I would authorize such a thing, which we had already done at our meeting in Waterville. I have had no further word from him. What he has done, I don't know, except that he did send out a circular to the grade schools and also to the school districts, and these questionnaires were sent, for instance, to the united schools, that were serving a hot lunch; then, there are a number of school lunch programs that are subsidized by the United States Department of Health and Agriculture, and so on. The secondary schools are those not in any union of schools, and they were sent a shorter questionnaire, and what replies have come in, I don't know, because I haven't heard from Mr. Wells about this.

At our meeting, the question was discussed of our furnishing by the fund, a teacher who would instruct in those schools. The majority opinion was opposed to that. We did not feel that there was sufficient in the fund for that. We had some $2,300.00 on hand, to be used, but that wouldn't go very far in furnishing teachers for three sanitariums, and they all needed a teacher, one as much as the other.

We did furnish one year $500.00 to Hebron, I believe, for a teacher for the scholars there, but it wasn't fair to give to Hebron and not give to the others, especially in northern Maine, where hundreds of these children are. I have been hoping to hear from Mr. Wells.

I don't know whether he is present or not, but I am hoping to have a meeting of the committee before the session here adjourns. I did not get my letter from him until May 19th, and that didn't give much time before this meeting. So that we really haven't done anything, I am sorry to say, because it is something that we have to have the funds intact for; the interest is growing and accumulating around $400.00 or $500.00 a year. At present we have between $2300.00 and $2800.00 on hand that we can use for some purpose, and the committee would like suggestions from the Association as to what you would have done with the money, because it is accumulating. It seems to me that the fund should be active.

CHAIRMAN SMALL: You have heard the report of Dr. Ebbett regarding the Amy W. Pinkham Fund. Do you have some suggestions or recommendations about it? This matter is open for your discussion.

DR. THOMAS FOSTER: Dr. Ebbett did make a majority report, so that I am in the minority, I expect. How many delegates here know about the Amy W. Pinkham Fund? (Some hands were raised.) Not too many here know about it. Would the Chairman permit an explanation of the Fund to the Delegates?

CHAIRMAN SMALL: If you would relinquish that until the other part of the program is over, we can take this up again. If that is satisfactory to you, and if I forget it, please call my attention to it.

At this time, we are going to have the reports of the Delegates to the New England Medical Societies. Dr. Shelton

and Dr. Jameson were appointed as Delegates to attend the Connecticut and Rhode Island Society meetings respectively, but were unable to attend. However, Dr. Carter went up to Vermont, and we are now going to hear from him.

SECRETARY CARTER: My report is very brief. Vermont had its annual meeting, September 7, 8 and 9, 1949, which I attended. Their meeting is conducted about the same as ours. They started Wednesday noon, and the afternoon was given over to golf and sports, and Wednesday evening, there was a meeting of the House of Delegates and the Council. They conduct their routine business there. The next day, there was a scientific session, with an address of welcome by the President, Theodore Howard, and scientific papers on "Diabetes" as well as the "Clinical Diagnosis of Poliomyelitis" by the Director of the National Foundation for Infantile Paralysis. That was followed by a paper by Dr. Aiken, Commissioner of the Department of Health, on the subject of "Poliomyelitis in Vermont."

A luncheon was held at the Hotel Vermont, and there were scientific papers in the afternoon, and a banquet in the evening. The final dinner was held at the Country Club, where pins and diplomas were presented to each of the men in practice for fifty years. This was followed by a dance.

During the meeting, there were clinics on surgery, medicine and eye, ear, nose and throat at the two hospitals.

The meetings were all very interesting and well attended.

As to the commercial exhibits, they had thirty-six exhibitors there, and they were very interesting. I enjoyed the meeting very much, and I thank you for allowing me to attend.

CHAIRMAN SMALL: Thank you, Dr. Carter.

May we now have a report of the Industrial Health Committee by Dr. Merrill Greene of Lewiston. (Dr. Greene was not present.)

At this time, I am going to ask Dr. Carter to read the report of the Committee on Mental Health, as Dr. Margaret Simpson, Chairman, is unable to be present here today.

SECRETARY CARTER: The Committee on Mental Health has considered the problem of sex education in the public schools, and feels, first, that the home is the logical place for sex and hygiene training, since these are a part of character training.

Secondly, at present, the parents are not often qualified to give such training and the schools must try to fulfill that need.

Third, sex education should be a part of a course of family relations, in preparation for family living, starting in the kindergarten and continuing through high school.

Fourth, medical physicians are not qualified to give talks on sex education, but can acquaint themselves and be available for advice and guidance.

CHAIRMAN SMALL: We shall now listen to the report of Dr. James Parker of Portland, Delegate to the Massachusetts Medical Society.

DR. JAMES PARKER, Portland: Mr. President-Elect and members of the Maine Medical Association. I had the privilege of representing you at the Massachusetts Medical Society meeting during the week of May 19th. The meeting took place on Tuesday, Wednesday, Thursday and Friday. It was a very interesting meeting, but differed, markedly, from our meetings.

The attendance is extremely large, and the activities are subdivided into a large number of small, specialty groups and luncheons. The program, likewise, is divided into a large number of specialty groups. It reminded me a bit of the American College of Surgeons or the American Medical Association. It was extremely instructive.

There was one point with regard to the business of the Society that particularly interested me, and that was that their Medical Insurance Plan has been very successful; at least it would seem so, because they are, this year, putting in force a complete medical coverage plan in the State of Massachusetts.

I appreciate the privilege of being a delegate and I want to thank you very much.

(To be continued in the November Issue of the JOURNAL.)


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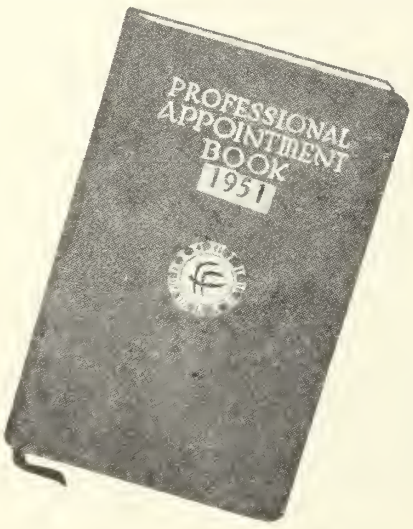
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## THE DIAGNOSIS OF INTESTINAL OBSTRUCTION

Max Hirshler, M. D.*

Intestinal obstruction, whatever its cause, is a difficult and important problem. Until not too long ago it represented a discouraging challenge to physician and surgeon. As regards my own experience before I left Europe, it was rather depressing to see how poor our results were in treatment of different kinds of intestinal obstruction. One of the best books on this subject in European literature by Braun and Wortmann was not free from a certain resignation in the outlook offered by our therapeutic efforts and procedures.

When I came to this country one of my most inspiring experiences was to see how the picture had changed due to the research and efforts of American surgeons and physicians. I think it is one of the great chapters in medicine where American medicine has taken the initiative and has led us to conceptions of intestinal obstruction which subsequently presented us with the means and ways to combat the dangers and hazards connected with this condition. In spite of an enormous amount of research during the last decade and great progress in approach and treatment there are still many questions and problems.

There is no doubt that in most cases intestinal obstruction belongs to the group of diseases under the heading "acute abdomen." As long as many basic principles and facts obtaining in these cases were not known to us, the diagnosis of "acute abdomen" evoked immediately the association of surgical intervention, so much so that "acute abdomen" was considered identical with "surgical abdomen." Many questions regarding diagnosis were easily omitted or dismissed, since exploratory laparotomy would make them less important, and the outcome when lucky gave credit to the surgeon, when unfavorable was due to the seriousness of the illness. To avoid the false conclusions resulting from inadequate and illogical reasoning it is necessary to remember that the making of the diagnosis is essential for sound surgical procedure. The taking and interpretation of the evidence is the way to correct diagnosis, whereby it is important to be aware that the taking of evidence rests on knowledge and method. The interpretation of all the facts obtained is based on experience.

Of the three sources supplying us with the necessary facts—the history, the physical examination, and the laboratory findings which include X-ray studies—the history should not be underestimated. It may even contribute more and better evidence than the other two. Except in cases when the patient is so severely sick that the physical examination may have to precede the taking of the history, we get invaluable information which allows to differentiate between intestinal obstruction and other acute abdominal disorders. We invariably will obtain statements about pains. The character, location, consistency and radiation of the pain will have to be investigated. We know

* From the Department of Surgery, St. Mary's Hospital, Lewiston, Maine.

that all colics of intra-abdominal organs may be referred to the mid-abdomen, so that the location of the pain alone may not be sufficient to ascertain the organ of its origin. To understand the pain in abdominal disorders it is good to remember that the sensitivity of the intestines themselves differs widely from that of the parietal peritoneum. The centripetal, pain transmitting fibers in the splanchnicus connecting the intestinal wall itself are very limited in numbers. This fact allows us to do operations of the intestine under local anesthesia of the abdominal wall. The intestine can be touched and handled without pain, as long as we do not exert any traction on the mesenterium. We can cut the intestine without producing painful sensation, whereas pain is felt as soon as we cut the mesenterium, which itself can be anesthezised by direct infiltration of the splanchnic nerve.

In case of intestinal obstruction the mechanics of the origin of abdominal pains have to be considered and we find four different sources of pain. The pain caused by the stretching effect of the distension of the intestinal loops is perceived because of the concomitant stretching of the mesenterium. The second source of pain is the intermittent colic, the most important for us diagnostically; it represents the attempt by the intestine proximal to the obstructing lesion to overcome the obstruction by mechanical action, i.e. increased and powerful peristalsis. The third source of pain is the inflammation which may accompany or follow the obstruction and mostly plays a part in the later stage of the disease. The last kind of pain we may call strangulation pain by torsion and incarceration which affects the mesenterium of the involved intestinal loop immediately.

Clinically and diagnostically the most important pain in intestinal obstruction is the intermittent pain. The patient commonly refers to it as "gas colic." Very often before the full fledged picture of intestinal obstruction develops, a history of pains, interpreted as gas pains accompanied by noises and sometimes with the sensation of elevation in the abdomen, is evidence of the presence of a structure. These recurring pains, setting in rather abruptly, increasing in intensity, reaching their maximum quickly and maintaining it for one to three minutes, the decreasing and ceasing, sometimes accompanied by characteristic noises which we call borborygmi, are intestinal colics and it can be stated that "intestinal obstruction of mechanical origin without intestinal colic does not exist." (Wangensteen)

Pains in other acute abdominal disorders, inflammatory exudate or sanguinous exudation irritating the peritoneum will not have that intermittent character of the intestinal colic and will present a continuous type of pain.

We will also get valuable information from the patient's report on nausea and vomiting. They accompany nearly all acute abdominal disorders, but they mean more in cases of intestinal obstruction. In some cases we can distinguish an initial vomiting which may be caused by reflex. In general the vomiting in obstruction very soon acquires a particular character, it becomes more frequent and more abundant. It is important that intestinal colic and pain in obstruction is relieved by vomiting, whereas in other inflammatory diseases or colics like biliary or renal colic the pains are not relieved by vomiting. The kind of vomiting, the color and odor are significant, brownish and feculent material is characteristic for small bowel obstruction. It has to be mentioned that classical intestinal colics and distension of the bowels may be present in obstruction of the colon without any vomiting, that in some cases enormous distention may even lead to perforation of the cecum before vomiting occurs. The reason for this is either the long way from the site of obstruction up to the stomach or the competence of the ileocecal valve which makes a closed loop of the entire colon down to the obstructing lesion.

It is unnecessary to emphasize the information we get from the patient as to bowel movements, change in bowel habits previous to the onset of the acute illness, intestinal bleeding concomitant with some forms of intestinal obstruction, the results obtained from enemas administered before admission, etc.

The physical examination as far as the general condition is concerned may not reveal much in the beginning of the obstruction since pulse, temperature, blood pressure may remain unchanged. The condition of shock will not prevail in obstruction except in a very advanced stage when severe complications have developed. In this connection it should be recalled that in acute abdominal disorders the only lesions which produce an early shock are those accompanied or followed by severe internal hemorrhage. Other disorders, be it a strangulation or a perforation of a viscus, may show severe prostration and sometimes excruciating pains but not a real shock. As things go on, with the rising pulse and toxemia the blood pressure will finally reach the level prevailing in shock. In the early state of intestinal obstruction the patient may not appear very sick. Only in the late stage will he show a "Hippocratic face."

Tenderness over the abdomen may be completely absent or appear when serosanguinous exudate into the peritoneal cavity causes peritoneal irritation. If tenderness is present with other signs of intestinal obstruction, it is a great help in localization of the lesion. Auscultation is helpful in establishing the diagnosis of intestinal obstruction sometimes more than palpation. It should be remembered that one should have the patience to spend considerable time for this phase of examination sometimes having to wait several minutes before hearing the characteristic

borborygmi concomitant with an intestinal colic. Peristalsis sounds without accompanying intestinal colic are not characteristic of obstruction but may occur in any intestinal hyperactivity.

Rectal examination should not be omitted since it is often useful in detecting a closed loop of strangulated bowel in the Douglas sac.

How much help do we receive from the laboratory in establishing our diagnosis? We said that the general findings on physical examination were not offering too much. This also applies to the routine laboratory tests. Urine is concentrated, may contain albumen and casts, but straightens out easily after relief of the prevailing dehydration. The blood shows the signs of hemoconcentration, and the presence of a high white count up to 20-30,000 does not allow a differentiation between inflammatory lesion and obstruction. All the changes of the electrolytes which we find in examination of the blood and an increased NPN are not typical for obstruction. They accompany any abdominal disease where frequent or protracted vomiting occurs or fluid balance is otherwise upset.

A great support in our efforts to reach a diagnosis is lent by the findings on X-ray examination. We are familiar with the pattern of intestinal loops distended and filled with gas, and in the majority of cases we are able to distinguish between distension of large and of small bowel and to obtain therefore valuable information. Pattern and outline of the distended loops will tell us about the degree of distension and the presence of fluid separating the loops and will make us aware of the impending danger of overdistension. We also have to keep in mind the fact that in the beginning X-ray findings may be negative and that the patient will even be better off when we are able to make the diagnosis before X-ray examination reveals marked distension.

After having come to the conclusion there is an obstruction we have to answer the question "Where is the obstruction?" In *large* bowel obstruction we most frequently find only colonic distension. If we recall the anatomy and physiology of the ileo-cecal valve which allows swallowed air and small bowel contents to enter into the colon but prevents regurgitation, the frequent lack of vomiting will be explained. The valve will become incompetent and the distension will reach the ileum and jejunum only in large bowel obstruction of long standing.

In some cases of acute obstruction it is often difficult to distinguish between jejunum and colon because on the film the Kerkring folds and the haustration of the colon may cause a similar pattern. It should be remembered that the loops of small intestine on the X-ray film usually show a transverse axis. If the axis is vertical, the loop most probably belongs to the colon. One kind of obstruction should be mentioned, where no general distension can be demonstrated and where a perforation of the ballooned cecum may occur quickly is an obstruction at the beginning of the colon ascendens.

If all cases were typical and uncomplicated one could go by a scheme listing the main symptoms as follows:

a. Obstruction near the dudenuo-jejunal junction: Bilious vomiting, dilatation of the stomach with splashing sounds, typical peristalsis waves over the stomach.

b. High small intestine obstruction: Bilious and fecalent vomiting, metallic sounds, intestinal colics, characteristic X-rays with distension and fluid levels, sometimes demonstration of prestenotic loop.

c. Low small bowel obstruction: Fecalent vomiting, distension, intestinal colics, audible and visible peristalsis, X-rays showing distension and fluid levels.

d. Large bowel obstruction: Meteorismus, especially in the cecal area, peristalsis sounds, intestinal colics, characteristic X-ray findings with possibility to demonstrate the site of obstruction by Barium Enema. Fecalent vomiting and small bowel distension present only in late stage.

In small bowel obstruction, to find out if the obstruction is complete or not an evacuation enema will demonstrate the presence or reappearance of a collection of gas. In large bowel obstruction the degree of distension particularly of the cecum is a good indicator.

Another important problem in the diagnosis is that of distinction between simple obstruction where the passage is blocked either by an intrinsic lesion or by compression or kink of the intestine and the obstruction by strangulation where not only a block is present but where the blood supply, the venous and arterial circulation are also impaired or interrupted. In the first case a conservative treatment may be permissible, whereas in the second case valuable time to save the life of the patient may be lost if the lesion goes on unrecognized in its character. For many cases a simple formulation may be useful by saying: in presence of real intestinal colic without tenderness we deal with a simple obstruction; in the intestinal colic accompanied by tenderness the obstruction is of the strangulating type. The explanation for this is that in strangulating obstruction serosanguinous exudate into the abdominal cavity will cause irritation of the peritoneum very quickly. It is a pity that this formula does not hold true for all cases, for instance in intussusception which is a combination of block and strangulation the serosanguinous exudate does not escape into the free peritoneal cavity, and the irritation with tenderness and muscular defense may be lacking. Occasionally we will find the presence of a strangulating lesion without much distension especially in the type of closed loop obstruction.

How can we differentiate a strangulating obstruction from other severe acute abdominal disorders as for instance pancreatic necrosis, inflammatory lesions, twisted pedicle of an ovarian cyst? We may find the presence of distension, pain, tenderness in those cases, but one symptom will be missing: the true intestinal colic which is described above as characteristic for the presence of obstruction. It pays to spend enough time at the bedside and to wait patiently for appearance and recurrence of these colics with the concomitant pains with sufficient evidence to make the diagnosis early. And early diagnosis remains the desideratum and the best way to successful treatment.

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# REFLEX RESPIRATORY AND CIRCULATORY DISTURBANCES IN ANESTHETISED PATIENTS

Dominique Martel, M. D.*

Control of respiration and circulation in the normal human being and the maintenance of optimal constant values is one manifestation of the homeostatic mechanisms responsible for normal life. This control is under the influence of endocrine substances, pH values of interstitial fluids, and balanced functioning of the autonomic nervous system. This latter comprises the parasympathetic system and the sympathetic to which is annexed the adrenalin secreting system.

The influence of this autonomic system on respiration and circulation, its action and modifications during anesthesia and surgical manipulations will form the subject of this paper. This can be treated in many ways; we would like to try and grasp the practical importance of the integrity of this system in anesthetised patients undergoing surgery. It will permit us to understand the mechanism and the etiology of certain respiratory and circulatory disturbances, grasp the far reaching influence of surgical manipulations and still very actual importance of delicate and smooth surgery.

We often have to deal with sudden drop in blood pressure developing in patients undergoing abdominal operations. These drops in some cases are quite pronounced and are to be distinguished from shock where the pulse is rapid and other symptoms are present. Here the pulse remains slow and the condition of the patient is apparently good. Seeking the etiology of this phenomenon it was found that it followed tractions and pressures on the coeliac plexus and viscera rceeiving their innervation from it such as gall-bladder, stomach, spleen, pancreas and upper bowel.

Other symptoms which develop also with this hypotension are hyperpnea preceded sometimes by apnea and contraction of the abdominal wall. The undesirable consequences of these disturbances are readily understandable and to be avoided if possible. The hypotension causes hypoea at the level of tissues; when this happens in the brain and the heart, the function of these organs may be seriously impaired. Hyperpnea and contraction of the abdominal wall cause disturbances in the operating field which render exposure and proper surgery very difficult.

Further experimentation with these disturbances have brought us the conclusion that they are due to excitation of the coeliac plexus and the sympathetic portion of its constituents. The syndrome is called coeliac plexus reflex. The inference follows that to prevent it measures that decrease sympathetic action are in order. The anesthetics of choice should be cholinergic in preference to adrenergic. Cyclopropane, pentothal, nitrous oxide should be preferred to ether. Drugs that block parasympathetic action such as atropine and scopolamine should be used moderately. The syndrome may be controlled with cholinergic drugs such as physostigmine if necessary. Patients that manifest autonomic imbalance should be watched carefully. The syndrome can also be lessened by deepening anesthesia. But to maintain a patient in very deep plains of anesthesia has the untoward results of increasing the possibilities of shock, lung atelectasis and other difficulties. The ideal way to prevent coeliac plexus reflex would be to manipulate in the upper abdomen as delicately as possible. Sudden tractions of gall-bladder and stomach should be avoided; packing of bowels should be done softly and not by sudden and violent poking. One should hold a retractor and not hang oneself on it. Surgery should not be started before patient is well anesthetised; rush and haste always make waste. Curare is of great value here in assuring good relaxation of the abdominal wall and minimizing the trauma of exposure. It is to be remembered that spinal anesthesia when blocking segments as high as thoracic IV will abolish the coeliac plexus reflex which is mediated through lower segments of the thoracic cord.

It may be one argument in favor of its use for upper abdominal surgery.

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We may summarize by saying that there is such a thing as coeliac plexus reflex, that it is a complicating factor of upper abdominal surgery intensified by rough handling and impatient packing. If we are to prevent its morbid consequences and still maintain a safe level of anesthesia delicate handling of abdominal viscera is of paramount importance.

Another group of reflexes of interest in anesthesia is the carotid body reflexes. The carotid bodies are specialized masses of nervous tissue situated at the junction of the external and internal carotids. They react to mechanical stimuli and chemical stimuli. A change in the blood or external pressure at that level will produce a change in the blood pressure, heart rate and respiratory rate. External pressure will cause hypotension, bradycardia, sometimes arrythmia and cardiac standstill. Changes in the pH of blood, in oxygenation of hemoglobin and certain drugs such as coramine will equally affect this carotid body. This carotid body reflex has its centripedal branch in the IXth cranial or glossopharyngeal nerve and its centrifugal branch in the vagus nerve. Its interest in anesthesia comes from its very important role in maintaining normal circulation by affecting blood pressure and cardiac activity. Should the blood pressure drop this reflex will produce tachycardia and vasoconstriction in order to restore a normal tension; should it rise—bradycardia and vasodilation will ensue. There is also a modification of respiration in an attempt to maintain the blood oxygenation as close to normal as possible. The functioning of this reflex is a wonderful example of the homeostatic mechanism of the human body continually operating to maintain the "milieu interne" of tissues within biological limits.

From the foregoing we may understand the importance of maintaining the activity of the carotid body reflex as near normal as possible during anesthesia, the importance of eliminating factors that may overexcite it or sudden changes in patients where it has been necessarily greatly obtunded by anesthetic procedures.

Sudden changes in patient's position will produce sudden changes in blood pressure e. g. if one assumes the vertical from the horizontal position suddenly the force of gravity will produce hypotension. If the carotid body reflex is active it will compensate by vasoconstriction and tachycardia and no deleterious effect shall be present. If not, hypotension and transient brain anemia may produce fainting. If the patient is anesthetized the hypotension and brain hypoxia may cause brain damage. This phenomenon explains why in moving anesthetised patients to and from the Trendelenberg position we proceed gradually. The carotid body reflex modified by general anesthetics operates slowly and we have to give it time for action.

During the initial stages of anesthesia this reflex like all others is overactive. This means that undue pressure or traction in the neck region may produce excessive hypotension, bradycardia and cardiac standstill. Any vagal reflex is dangerous and its overactivity should be avoided. The first stages of anesthesia is no time to examine a goiter or any lesion of the throat or prep patients for operations on the neck. The anesthetist should always be consulted as to the stage of anesthesia before manoeuvers about the neck are indulged in.

When operations in the anterior portion of the neck are performed the carotid body reflex may be unduly stimulated. Excessive tractions, dissection with fingers with its considerable amount of pressure, retractor pressures, may be responsible for excessive hypotension, bradycardia and cardiac standstill. To eliminate this, deepening of anesthesia is useful but then the reflex may be too obtunded; direct blocking of both sinus body nerves is sometimes resorted to when the reflex is too troublesome. Careful handling of the neck, gentle retraction, patient and sharp dissection will go a long ways towards elimirating and minimizing troublesome carotid sinus reflexes. Vagolytic drugs such as atropine are also useful. But what we would like to draw your attention to here is that this carotid body reflex is a very useful one in maintaining good homeostasis and we should try as much as possible to maintain its action during anesthesia, prevent its over-excitation by gentle and timely handling of neck tissue.

Here again as in coeliac plexus reflex, gentle and patient surgery is necessary in order that as light a plain of anesthesia may be possible and the physiology of the patient kept as near normal as possible.

Come now special vagal reflexes of a troublesome nature produced by certain surgical manoeuvers. We will intentionally omit those originating in the thorax and secondary to direct mechanical irritation of the pulmonary hilum, the pericardium, the pleura and the vagi as belonging to the special field of thoracic surgery. The actions produced by such reflexes are laryngospasm and the usual cardiac vagal influences—bradycardia, hypotension, arythmias and occasional cardiac arrests. The zones of origin of those reflexes are the rectal region, the peritoneum, the periosteum, large nerve trunks, the eyes, and respiratory mucosa. When the rectum is dilated, when pressures are exerted on it from traction on uterus, dilatation of vulva and vagina, laryngeal spasm often times of a severe nature may ensue. Cardiac depression is also present. This reflex may be very troublesome and requires very deep anesthesia to disappear. In many cases it may be impossible to eliminate it even with very deep anesthesia. This laryngospasm if maintained for a long time may result in hypoxia leading to brain damage and shock. This is a reflex very prone to develop in obstetrics when the obstetrician is

too anxious to dilate the vulva while anesthesia is still in the first stages. Believing they stimulate the patient's breathing some doctors think they make anesthesia easier. In fact they make the patient attempt violent breathing efforts on a partially or totally closed glottis and only lengthen the time of anesthesia if they do not cause greater damage to the woman's brain and to the fetus. By abolishing this reflex completely with a minimal of risk for the mother and the fetus saddle block anesthesia in obstetrics has an advantage over general. We only have to remember that rectal stimulation may result in cardiac arythmias and arrest to realize the importance of taking it easy in that region even if the patient sleeps deeply.

Stripping of periosteum and section of large nerve trunks such as sciatic nerve may also result in vagal reflexes. Laryngospasm here may again become very troublesome in these cases. Some surgeons have the habit of blocking intercostal nerves when resecting ribs, in thoracic surgery. Novocaine infiltration of sciatic nerve in leg amputation may prevent too deep a general anesthesia.

When operating about the head one has also to remember that excessive pressure on the eyeballs may result in alarming bradycardia. Oculo cardiac reflex is very well known. If the patient is intubated and has his head all covered with drapes it is much easier to forget this possibility and pressures on the eyes produced. It is well to keep this in mind.

Laryngeal intubation is a very useful procedure and in some operations almost necessary. It permits easier access, more sterile fields to the head and neck and makes for a much smoother anesthesia. It is well to remember that it is not a simple procedure and if conducted improperly and with too much haste may result in disaster. Cardiac arythmias and permanent arrest have been reported when endotracheal tubes have been introduced in too lightly anesthetised patients without cocainisation of the larynx. This is why endotracheal intubation should be regarded with respect and enough time granted for its proper conduct. If performed correctly, without rush it is perfectly harmless. Let us keep this in mind and not rush the anesthetist who has to perform one for the best interest of all concerned.

The autonomic nervous system is a very important factor in maintaining physiological conditions of respiration and circulation. It is the purpose of well conducted general anesthesia to keep this autonomic system as active as possible. In order to do this as light a plane of anesthesia as possible is seeked, while abolishing consciousness, the perception of pain and contraction of striated muscles. This is impossible if the necessity for soft, delicate, patient surgical manoeuvers is not kept in mind. The anesthetist should know very well the requirements of every given operation but it is also the duty of the surgeon to understand the far reaching effects of his manipulations. If we are to perform surgery where insult is not added to injury every member of the surgical team should know a little of the other member's problems. Only through mutual understanding can our services be well integrated to the best interest of our patients. The modern surgical team is not a group of juxtaposed technicians but an integrated association of human brains working on one unique problem (a successful operation) applying to its solution different specialized techniques with the understanding that each manoeuver has an influence on the quality and success of the others in bringing about renewed health to a patient.

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Even after clinical follow-up in minimal tuberculosis has confirmed the interpretation of the ill-defined X-ray shadow, the physician is faced with another and perhaps more serious problem. He must then cope with the question of the lesion's significance, and must decide upon the course of action to be taken in its management. Will the patient need to undergo hospitalization and surgical procedure? Can the lesion be managed under a home-care regimen? Or will it be sufficient to place the patient under long term observation, imposing only token limitations upon normal activity? It will be most urgent that these questions be resolved properly and decisively.

These are but a few of the problems which our screening survey experiences in communities and hospitals pose for us and for the medical profession generally. Meeting them directly and fully is the best assurance of effective tuberculosis control. — Robert J. Anderson, M. D., *Journal-Lancet,* April, 1950.

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Modern public health does not prevent death alone. It also prevents disease. For every life preserved by a tuberculous program, scores of individuals are saved from invalidism. For every life saved from malaria, hundreds of individuals are maintained as active producers in the population.—*Am. J. Pub. Health,* August, 1950.

# NPH INSULIN

Paul R. Chevalier, M. D.*

A new type of insulin has been placed on the market for the first time this fall. NPH Insulin is the culmination of a long series of studies the objective of which has been to select a preparation having a time activity best adapted to the requirements of the majority of diabetic patients. Interest in the clinical usage of Insulin has for many years been directed toward the development of a preparation which, by means of a single daily dose would most closely conform in its action with the daily needs of the diabetic patient.

With the coöperation of the Toronto Insulin Committee, a systematic attempt was made to develop a more efficiently timed preparation. This resulted in an intensive study of a large series of different combinations including both acid (clear) and buffered (cloudy) preparations and other modifying agents, such as histone and globin. The acid clear preparations were finally discarded because of the inherent variability of their effect. Of the buffered (cloudy) preparations, only three stood the clinical test of time and usage. These are 2:1 mixture, NP-50. Of these, only one was well adapted to rigid pharmaceutical specifications: specially modified Insulin type NPC-50, a code later changed to NPH-50, and now being marketed as NPH Insulin.

Clinically, NPH Insulin is considered to be an improvement because the ideal Insulin preparation for the management of diabetes should act long enough to prevent nocturnal hyperglycemia in severe cases and should possess moderate overlapping effect to compensate for the lack of immediate rapid action, a characteristic which appears to be inherent in all intermediate and slowly acting modifications studied thus far. It is the overlap that "saves the day" and assists in gaining control of both the daytime and the nighttime periods. NPH Insulin has a time activity which appears to provide these requirements with a single daily injection in the majority of cases.

The action of NPH Insulin is intermediate between the rapid but short effect of Insulin and very slow but prolonged action of Protamine Zinc.

In the name NPH for this new type, "N" stands for neutral, "P" for Protamine, and "H" for Hagedorn in whose laboratory in Copenhagen, Denmark, the methods for preparing the consistently highly purified crystals of protamine zinc, and Insulin compressing NPH Insulin were originally developed.

Clinical work has been conducted on NPH Insulin since early in 1946. More than 1500 case reports have been submitted, many of these are included in published reports while a great many more are contained in unpublished data.

NPH Insulin contains approximately 0.4 mg. of protamine per 100 units of the insulin as compared to 1.25 mg. of protamine in the Protamine Zinc Insulin. It will be supplied in U-40, 10 cc. and U-80, 10 cc.

NPH Insulin has an "overlapping effect" from one day to the next, the average duration of action being approximately 28-30 hours. Its prompt onset of action in comparison with Protamine Zinc Insulin being additive to the overlapping effect of the prior dose, is usually sufficient to control the after-breakfast rise in blood sugar which formally called for supplemental doses of unmodified Insulin in many cases. In some unstable difficult cases additional Insulin may still be required.

NPH Insulin can be used initially on a new diabetic just as Protamine Zinc was previously advised. The advantages are smoother control, more efficient timing and less frequent need for supplemental insulin. In the uncomplicated case of average severity the dose of NPH Insulin may be 10 units before breakfast. This is increased by 3-5 units until satisfactory readjustment is established as determined by blood sugar levels and freedom from glycosuria.

As with any Insulin preparation, each case of diabetes requires individual management and adjustment of dosages which must be based on therapeutic response.

Approximately 85% of patients can be controlled properly with one injection daily of NPH Insulin. This is a larger segment than for any other type of Insulin, but as with the other preparations there will be a group of severe diabetics who will require some special treatment such as a supplemental injection of unmodified Insulin or a special mixture, or, in very unusual cases, two doses of NPH Insulin.

The suggested technic for changing a patient to NPH Insulin is as follows: since the clinical effect of NPH Insulin is practically the same as a 2-1 mixture (2 parts unmodified Insulin and 1 part Protamine Zinc) and patient who is using such a mixture may switch to NPH Insulin usually without any alteration in the total number of units.

In patients who are under treatment with Protamine Zinc Insulin, the initial dose of NPH Insulin should be reduced approximately 10-20 per cent and then increased on subsequent days if necessary.

In patients who are using globin Insulin with Zinc, the dose of NPH Insulin should be approximately the same number of units. The advantage for the

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average patient will be the longer depot effect over the night, and less tendency to unpredictable reactions since NPH Insulin is already buffered and does not have to be altered in the body after injection. The incidence of nocturnal reactions have been very low with NPH Insulin.

With NPH Insulin as with any modified Insulin, patients should have extra food prior to exercise. It may be desired to include a bedtime feeding, or occasionally a 3-4 P. M. feeding particularly in children because of their extra activity during daytime playing hours.

I feel that this new type of Insulin will be a great step forward in better control of the diabetic over the 24-hour period, and at the same time will be much less troublesome for the patient. From all the data available this new product appears to have a great future.

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# THE SIGNIFICANCE TO THE PHYSICIAN OF GINGIVAL BLEEDING*

Moses S. Strock, D. M. D.**

The patient with bleeding from his gingivae may not be aware that the blood in his mouth is from his gingivae alone. He is apt to know only that he can see bloody saliva when he empties his mouth. It may be this very symptom, the spitting out of blood, that brings him to the physician.

Some patients, having read or heard the information distributed about malignant disease, are very much concerned about the presence of blood. If such a patient has found blood on his pillow on awakening, he is likely to come to the physician or to the dentist at once. Other patients have long known the taste and odor of blood. While these patients may not be aware that the foul taste or odor which is present is due to the decomposition of blood in the mouth, they have long known that sucking or drawing on certain areas of their mouths would produce bleeding. These patients have been lulled into a false sense of security by advertisements of the "pink tooth brush" variety. They have assumed that daily bleeding is the rule rather than the exception and have procrastinated about bringing this bleeding to the attention of either their dentist or their physician. Eventually, when they do complain it is sometimes to the physician in the course of a routine examination.

What, then, is the significance of gingival bleeding? Primarily, one must determine whether it is actually gingival bleeding or whether it is bleeding into the mouth from another source.

The search for the source of bleeding begins with the history, although the site can only be suggested by the patient's story and then located by an examination that is thoroughly and skillfully carried out. In history-taking certain questions are especially important. For example:

How often has bleeding occurred and over how long a period? Most adults have had some sporadic self-limiting bouts of bleeding from their gingivae since adolescence. If the history is one of daily bleeding over a period of years it is more likely that the bleeding is from the gingivae than from some neoplasm of which the patient is unaware.

How long does each attack last? Attacks of bleeding from the gingivae, if uncomplicated by underlying systemic, are of short duration. If due to trauma, they rarely last more than five minutes. If due to gingivitis of local origin, the episode is unlikely to continue for more than half an hour. However, if spontaneous bleeding occurs recurrently, several times a day, the patient may erroneously consider it as one long attack of bleeding. Such a series of episodes is most often due to Vincent's infection. Bouts of bleeding, actually lasting longer than thirty minutes should make the examiner suspicious of a blood dyscrasia.

Does bleeding follow tooth brushing or rinsing or eating? Bleeding following tooth brushing is usually due to gingival trauma from the tooth brush. It can occur in normal gingivae or, more readily, in patients with gingivitis due to local causes or in patients with a gingivitis superimposed on systemic disease. If the trauma is inflicted on normal gingivae, the bleeding will be from a single area, although the site of the bleeding area may vary from time to time. In cases of gingivitis the patient will complain of bleeding which is brought about by causes other than tooth brushing, such as rinsing, eating, or sucking or drawing on areas between the teeth.

Does bleeding occur at night? Does it awaken the patient? Although the patient with Vincent's infection may find blood

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* As presented to the Dental Department of St. Mary's Hospital, Lewiston, Maine.

** From the Dental Service of the Peter Bent Brigham Hospital.

on his pillow in the morning, this is usually an ooze and is not sufficient to awaken him. However, nocturnal bleeding, which is not rare in the dyscrasias nor in bleeding from areas other than the mouth, can awaken the patient and can interfere with the resumption of sleep.

Does the mouth fill with blood or is it a small ooze? Gingival bleeding is never rapid enough to fill the mouth unless there is an underlying blood disease, such as a refractory anemia or thrombocytopenia. More often than not a mouthful of blood is evidence of bleeding from a source other than the gums, and it is the gravest of all of these symptoms. If it occurs with retching or vomiting[1] or with coughing, bleeding from the gingivae is the least likely diagnosis, and the nasopharynx, the tongue, the cheeks, the lungs, or the G. I. tract are the most likely sources.

In addition to the history the local examination is of extreme importance in establishing the site of bleeding. This examination should be performed in good light and in a dry field. A mouth mirror and a suction tip and aspirator are invaluable in helping to see and to isolate the bleeding point or points. Gingival bleeding may be generalized or from a single interdental papilla or from a single isolated spot on the gingival margin. The patient can help in limiting the diagnosis if he is able to produce bleeding by sucking on a particular tooth.

The gingivitis commonly seen and frequently a cause of bleeding may be due to any local irritating factor. A large cavity into which food has become packed, an accumulation of calculus, a foreign body, such as a toothpick or a tooth brush bristle, produces the familiar picture of an inflamed and bleeding interdental papilla. The cause is apparent on careful examination. There may be several such sources of blood, particularly where dental care has been neglected and where the oral hygiene is poor.

The color, contour and texture of the gingivae require study and comparison with the normal. The examiner should, for example, familiarize himself with the enlargement of the gingivae in leukemia, the destruction in granulocytopenia and the hue of the gingivae in polycythemia. Particular attention should be paid to the interdental papillae, which are most frequently irregularly enlarged in leukemia and ulcerated in Vincent's infection. The areas most accessible to and most often injured by the tooth brush should be studied. These are the labial and buccal gingivae in the anterior and bicuspid areas. Here may be found the site of bleeding and in addition, evidence of old injury and repair of the gingivae producing gingival recession. (Fig. 1) The local examination should give especial attention to the third molar areas which are sometimes the only areas involved in acute gingivitis. This may be overlooked if it occurs in infectious mononucleosis.

If the bleeding is thought to be due to trauma, cessation of brushing or a change of technique will help to determine this. The bleeding associated with tooth brushing is most frequently overlooked. Few people realize that the bleeding which follows the daily use of the tooth brush is the result of a laceration of the mucosa by the bristle ends. Evidence of such damage was found in the majority of a large group of adult mouths.[2] Although many efforts have been made to correct tooth-brushing techniques,[3] a new non-traumatic technique , recently described, offers hope that this type of trauma can be eliminated.[4]

If the bleeding is thought to be due to Vincent's infection, there may or may not be associated fever, pain, malaise, foul breath and tender and swollen glands. Loss of contour of the interdental papillae with ulceration occurs with the bleeding. Vincent's infection can be ruled out by therapeutic test, since it has been shown that the acute ulcerative and bleeding aspects respond at once to penicillin therapy.[5] Since medication affects only the acute symptoms,

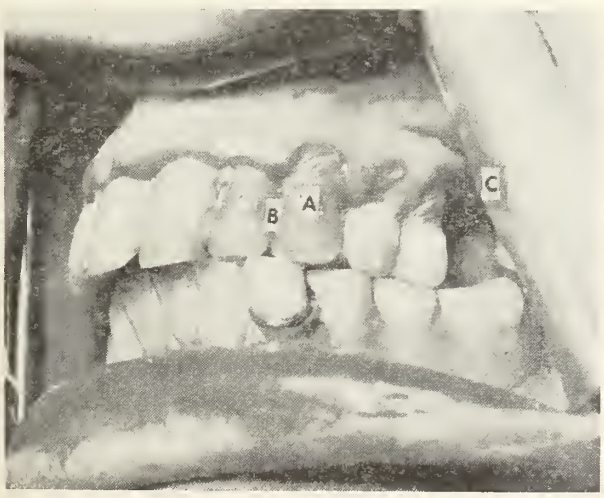



Figure 1
Note the evidence of toothbrush damage on the teeth just above A, and the gingival bleeding points above B, and the gingival recession to the left of C.



Figure 3
Bleeding in Refractory Anemia
Note the enlarged gingival papillae and the blood oozing from the gingivae in this case of refractory anemia.

even though the bleeding is initially controlled with penicillin, bleeding will recur unless the underlying local dental causes are eliminated. If this acute phase does not show dramatic improvement within twenty-four hours subsequent to the institution of adequate penicillin therapy, causes other than Vincent's infection alone, must be considered. Such causes include the blood dyscrasias.

The diagnosis of the blood dyscrasias which may cause bleeding from the gingivae requires many of the diagnostic laboratory aids familiar to the physician. Even when these laboratory procedures are promptly available it is not always possible to make a positive diagnosis for forty-eight to seventy-two hours, as in infectious mononucleosis. In the differential diagnosis the examiner must consider the acute and chronic leukemias, granulocytopenia, polycythemia, thrombocytopenia and the anemias, (Fig. 3) the metallic and benzol poisoning, scurvy, the gingivitis of pregnancy and infectious mononucleosis.

When gingival bleeding does occur the cause should be sought and eradicated. Although gingival bleeding is a common and not necessarily a serious symptom, it should not be accepted as a normal episode.


## Summary

The significance of gingival bleeding and methods of determining the importance of hemorrhage within or into the mouth are discussed. The importance of the history in locating the source of bleeding is considered. The technique of local examination as an aid to finding the sources of bleeding within the mouth is described. Various local causes of bleeding from the gingivae are considered and the importance of this symptom as an indication of an underlying systemic disorder are reviewed.


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# STATISTICAL REVIEW OF ABORTIONS

Edwin Kay, M. D.*

During the period January 1, 1945, and August 31, 1950, 130 patients entered St. Mary's General Hospital, Lewiston, Maine, with a chief complaint of vaginal bleeding preceded by a period of amenorrhoea of from 5 to 26 weeks.

The final diagnosis in these cases was:

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|---|---|---|
| (1) | Threatened abortion | 19 cases |
| (2) | Inevitable abortion | 12 cases |
| (3) | Incomplete abortion | 70 cases |
| (4) | Complete abortion | 15 cases |
| (5) | Threatened miscarriage | 2 cases |
| (6) | Inevitable miscarriage | 2 cases |
| (7) | Miscarriage | 6 cases |
| (8) | Self-induced abortion | 1 case |
| (9) | Septic abortion | 3 cases |

*Treatment*

Fell in 3 groups.

(1) Active. 66 cases consisted of emptying the uterus. This was accomplished by digital evacuation, removal by forceps, dilatation and curretage and irrigation of the uterus in one case.

(2) Conservative—45 cases. Consisted chiefly of supportive treatment and bed rest.

(3) Hormone Therapy — 19 cases. Consisted of estrogens, Stilbesterol and Progesterone chiefly.
Most cases received Penicillin.

*Period of Hospitalization*

(1) Actively treated from 3 to 35 days. Average 7 days.

(2) Conservatively treated from 3 to 9 days. Average 6 days.

(3) Hormone therapy from 3 to 21 days. Average 6 days.

*Blood Transfusions*

Twelve cases received 1 or more blood transfusions.

*Laboratory Studies*

(1) Blood Serology
Done on all cases. Only 1 gave a doubtful Hinton and Kahn.

(2) Urinalysis
Nineteen cases showed S.P.T. to 2 plus albumin.

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(3) Sedimentation Rate
Done on a few cases. No uniformity observed.

(4) Haemoglobin
All cases but one had blood count and haemoglobin. The Hbm. was usually in proportion to the blood loss.

*Morbidity*

Cases showing a sustained temperature of 99⅗ for more than 24 hours were considered as being infected. There were 56 cases of infection and 74 afebrile cases.

*Pathological Report*—68 specimens submitted

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| (1) | Placental tissue | 20 cases |
| (2) | Placental tissue with infarction and necrosis | 17 cases |
| (3) | Decidua | 8 cases |
| (4) | Decidua with hemorrhage | 3 cases |
| (5) | Decidua with necrosis | 4 cases |
| (6) | Decidua with sepsis | 8 cases |
| (7) | Decidua with infarction | 3 cases |
| (8) | Degenerated decidua | 3 cases |

*Mortality:* none

*Complications*

Phlebitis—1 case.

Infectious hepatitis was followed by abortion in 1 case.

*Habitual Abortion*

There were 5 women in this series who had had from 2 to 5 abortions.

Reviewing the above statistics, there is nothing remarkable in the findings. The incidence of abortion is still high and not much progress has been made in the overall reduction.

Among the etiological factors, the endocrines have received considerable attention but except in the larger centers the estrogenic and progesterone assays are not much used. At present one uses Hormone therapy in these cases by a "hit-or-miss" attitude.

The clinical types, Threatened, Inevitable and Incomplete, usually give a history of lower abdominal cramp-like pains and uterine bleeding. Frequently a patient will experience symptoms similar to those preceding menstruation — pelvic pressure, headache, backache, malaise.

Heavy sedation is indicated in the Threatened abortion cases, together with complete bed rest.

In order to diagnose the type of abortion, the condition of the cervix, open or closed, soft or firm, must be evaluated. Is bleeding present? The presence or absence of uterine contractions will give a clue as to whether the uterus is empty or not.

In the differential diagnosis, ectopic pregnancy, fibromyomata, menstrual disorders, and malignancy are the chief conditions to be considered.

Much has been written about abortion. Its social medico-legal and medical aspects date back to antiquity. For a fuller consideration of the subject there are excellent chapters in the textbooks of Adair, Curtis and Taussig.

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# ROENTGEN THERAPY OF INFLAMMATORY LESIONS AND NON-MALIGNANT DISEASES

Samuel Bluhm, M. D.*

Inflammation is the local reactive change in tissues following injury or irritation. This is a fundamental concept of pathology. Clinically, it is usually divided into acute and chronic forms but from the pathologic point of view they may be considered as two phases of the same process. The classical clinical signs of an acute inflammatory process on the surface of the body where it can be seen and felt, are: swelling, heat, redness, pain and disturbance of function. The swelling is due to the edema, exudation and congestion in the area. The redness results from the vascular dilatation and congestion. Pain is due to the swelling and tension on tissues covered by the exudate, with pressure on nerves. The cells and tissues involved by inflammation have their normal function disturbed.

Chronic inflammation is a process in which exudative changes are prolonged, and a proliferation (especially of connective tissues) forms a prominent feature. It may be simply a late stage of a more acute process or the inflammation may be essentially chronic (productive) from the beginning. The latter has got to be the case with organisms of low virulence where the pathogenicity tends to be nearly balanced by the resistence of the body. The predominant cells in chronic inflammation are lymphocytes, plasma cells and macrophages, although a few polymorphonuclear

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leucocytes may be present. The proliferative activity leading to the production of abundant scar tissue may in itself be distinctly harmful.

It appears to be a common concept that acute inflammatory lesions respond to irradiation whereas chronic ones do not. This concept is not true. Although certain lesions may be chronic clinically and pathologically such as we see in bursitis, they will often times respond promptly to roentgen therapy with relief of pain and disappearance of the calcium which in itself is sign of chronicity. We must evaluate both the clinical and pathological picture carefully.

Roentgen therapy or radium may be used to treat certain inflammatory process depending on what agent the therapist has on hand and his familiarity with its uses. In the contact therapy of lymphoid tissue in the nasopharynx the beta rays of radium may be beneficially used. Low and medium voltage roentgen rays may be used in the treatment of inflammatory lesions. High voltage roentgen therapy may frequently be found useful. The type of therapy used will depend on the location of the lesion to be treated with careful attention to the relationship of the air dose, skin dose and depth dose to the half value layer, field size and distance.

It is a good idea whenever treating outer lesions to start with a small dose, probably 50 r., because irradiation often increases the hyperemia, phagocytosis and lymph causing increased skin tension, swelling and pain initially. This is usually followed by resolution. Treatment should be spaced wisely. In chronic conditions relief from pain is all we may expect.

Shortly after the discovery of roentgen rays the first report of their use in treatment of acute inflammations were published but it was not until Henderson and Fried made their report before the Surgical Congress in 1924 that this method became widely known. The chief inductions today are acute pyogenic processes on the cutaneous surface and inflammations in the breast, oral cavity and accessible lymph nodes. There is some evidence that X-ray therapy mobilizes the immune reaction of the organism and therefore may be a useful adjunct to chemotherapy. X-ray therapy also may be beneficial when there is a toxic reaction to penicillin or sulfonamids or drug resistance of the organism. Portable X-ray apparatus makes possible the use of bedside radiation therapy. Roentgen therapy has been attempted in a variety of internal diseases. The adrenals, hypophysis and sympathetic paravertebral ganglions have all been irradiated in cases of hypertension. In essential hypertension of the hypophysis type irradiation of the hypophysis is occasionally good, particularly on women having the menopause. Irradiation of the adrenals has been tried in angina pectoris. Roentgen therapy has been widely used in chronic articular conditions. The arthritis associated with rheumatic fever is unresponsive in all stages. X-ray therapy has been used for low back pain and periarthritis humeroscapularis. In low back pain the treatment is of value as in general lumbar and lumbosacral radiculitis. Periarthritis humeroscapularis includes inflammation of the three bursae of the shoulder joint as well as tendovaginitis of the supraspinatous and long tendon of the biceps muscle. The response of bursitis to roentgen therapy is good.

Chronic conditions of the tonsils are sometimes susceptible to X-ray treatment, particularly hypertrophic tonsils with mild pathologic changes. Acute parotitis occurring after laparotomy may respond well to roentgen therapy. Bronchial asthma secondary to chronic bronchitis, bronchiectasia or enlargement of the hilar lymph nodes may be improved by irradiation of the affected areas but the primary, allergic type of asthma does not respond.

Peritoneal and glandular tuberculosis can be treated by roentgen rays. In pelvic tuberculosis in women the tubes should be removed surgically as a preliminary step if they are severely damaged. Roentgen therapy is absolutely contraindicated in pulmonary tuberculosis.

Roentgen therapy for amenorrhea and dysmenorrhea may succeed but if the first course of treatment fails repetition is not advisable.

In all these conditions roentgen therapy should be effectively coördinated with other therapeutic measures and should only be used when there is some indication and not as a last resort when all other treatment has failed.

The important point in roentgen therapy of acute infections is that small doses are sufficient. In most cases only one treatment is required but two or three may be given. Treatments are given at intervals of three to four days. An individual dose seldom exceeds 50-120 r. An important consideration is the size of the field. Experience has shown that a large field must be irradiated, not only the inflamed area but sufficient surrounding tissue to insure that unquestionably normal tissue has been reached. Irradiation should be instituted as quickly as possible, generally within 24-48 hours and careful observation should be made closely after treatment so that incision can be done in case of failure.

James F. Kelly of Omaha, Nebraska, in a recent review of reports of experimental studies made during the past 40 years on the effects of roentgen rays in infections, compares them with reported clinical observations in the same period. Some of the data agree so consistently that these observations may be accepted as facts.

Three factors must be present to secure beneficial effects or irradiation in prevention of wound infection or treatment of acute toxic infections; the tissue, dose and time factors.

When these factors are all present, an antitoxic factor of bacterial origin is developed by irradiation of living tissue. This factor is non-specific and, therefore, of value in prophylaxis and treatment of many infections during the period of its effectiveness which is from the second to the seventh day. From experimental and clinical observations it seems that about 100 r. dose of filtered roentgen rays is adequate. Such dose may be given at 12-24 hours intervals. The number of doses depends on the clinical course. Irradiation should be started at once as the time factor is important. Any contaminated wound in which a gas infection may be expected to develop or in which there is danger of tetanus infection, should receive roentgen therapy each day for three days. The patient, of course, should also receive tetanus antitoxin, since the disease may occur in the third or fourth week after the effect of irradiation has disappeared.

If irradiation is given for prophylaxis soon after the injury occurs, the period of protection begins in a few hours and continues for several days beyond the time a gas infection is likely to develop. Since the antitoxic factor is non-specific, the danger of infection from many other organisms is also eliminated or greatly diminished by the irradiation.

Both experimental and clinical observations indicate that sulfonamids alter or inhibit the effect of roentgen rays. The two types of therapy should in no circumstances be combined, as such combined therapy produces high morbidity.

### *Boils and Carbuncles*

A. Richard and R. Humbert (Lausanne) reviewed results by other authors and report those in 291 cases treated by them from 1939-1942. In 192 cases of boils and carbuncles of the face and other regions roentgen irradiation produced a rapid cure.

G. Daniel (Marseille) recommends a technique in which dosage is regulated in steps according to the acuity of the inflammatory process. Radiosensitivity corresponds directly to the degree of acuteness of the inflammation. He properly calls attention to the necessity of individualizing treatment, especially in inflammatory conditions, if good results are to be achieved. No universal dose of radiation is applicable to all cases. A. Rosselet and R. Humbert (Lausanne) studied the phagocyte power of irradiated polymorphonuclear leucocytes and found that this was greatly reduced by a dose of 300 r. but greatly augmented by doses of 75 and 150 r. F. O'Brien states that of 130 hospitalized cases with severe carbuncles treated by roentgen rays alone or in conjunction with surgery 60 who received roentgen therapy only were relieved of pain in 3-9 hours after the first treatment. The average number of treatments in this series was three. The average hospital stay was cut down by two-thirds compared to the others. It is his belief that roentgen therapy is just as efficacious today despite the prevalent vogue of chemotherapeutic agents. There is no contraindication to roentgen therapy after the use of sulfonamids or penicillin.

### *Traumatic Bursitis. Treatment of Peritendinitis Calcarea of Shoulder Joint by Roentgen Irradiation*

The most often affected bursae of the shoulder joint by inflammation are the olecranon and subacromial bursae. Before operative procedures are instituted roentgen therapy should be tried. The diagnosis should be established clinically and by roentgenograms before treatment is started.

The pathology of this condition has been described as degeneration of the tendon fibers with round cell infiltration and occasional giant cells with deposition of calcium salts. Hodges, Phemister and Codman agree that the calcification is always in the tendon rather than in the bursal sac. Sandstrom was able to demonstrate calcified dense shadows not only near the shoulder joint but not too infrequently also in other parts of the body, which produced identical symptoms wherever they were localized. He believed these manifestations represent a disease which he called "peritendonitis calcarea." In a series of 78 consecutive cases referred to F. O'Brien in 1946-1947 more than 70% showed calcific-like deposits in the region of the supraspinatis tendon. Each patient received four treatments, a few cases as many as six. The majority of patients reported relief of pain after the second treatment. Only two failed to report complete relief of pain following radiation therapy. Treatments were given four days apart, 200 r. at a sitting through a 15 x 15 field with 200 KV., 0.5 mm. copper, 1 mm. aluminum at 50 c.m. distance over the affected shoulder joint. Dr. O'Brien feels that in cases that fail to respond, it is a good idea before trying other methods to treat the area of the nerve roots of C3-C4-C5 which supply the skin of the neck and shoulder.

I. Klein of New York City reports on results of 100 cases of peritendonitis calcarea of the shoulder joint by roentgen therapy. He classified 61 of the 100 cases as acute (duration of condition less than one month), 11 as subacute (duration two months) and 28 as chronic (duration more than two months). Usually 6-8 treatments averaging 125 r. applied anteriorly and posteriorly were given over 7-14 days. Kilovoltage was determined by the thickness of the shoulder. Factors were: 125: 200 KV., 5-7 mA., 35-40 c.m. distance with a 10 x 15 c.m. cone used. He noted improvement in the average case within seven days. The best response was in the acute cases, partial to complete resolution of the calcification with excellent relief of all associated physical symptoms occurring in 69%. In 36% of the subacute cases a reduction of calcification followed treatment. The

disability period in these cases was longer with an average of 26 days and in most of them two courses of treatment were necessary. In 32% of the chronic cases there was a reduction in calcification with response to treatment similar to that in subacute cases. However, in these chronic cases in which the calcification was bone-like, no response to roentgen therapy occurred, and surgical removal of calcification was necessary.

From these results the author concludes that acute cases of peritendonitis calcarea are most likely to be favorably affected by roentgen therapy. There is no doubt that irradiation is the method of choice for treatment of bursitis.

### *Chronic Arthritis*

John G. Muhns and Sidney L. Morrison report results of X-ray therapy in 370 selected patients of whom 252 had rheumatoid arthritis and 118 osteoarthritis. This group comprised about one-tenth of the total number of patients treated by them during a 12-years period. The treatment was varied to suit the individual case.

Objective changes, evaluated by observation, by measuring the circumference of the joint and by recording the ranges of active painless motion were observed in 290 cases. Improvement was slight in 89 (24.1%), moderate in 138 (37.2%) and marked in 63 (17.1%). In only 25 of the markedly improved patients was there complete subsidence of all inflammation and symptoms. In 80 patients (21.6%) there was no improvement. Results varied in the different types of chronic arthritis. The best results were obtained in rheumatoid arthritis of the spine, 84.6% of 98 patients showing improvement. In rheumatoid arthritis without spondylitis, improvement was seen in 79.5% of 154 patients. In osteoarthritis, improvement was seen in only 72% of 118 patients.

X-ray therapy is useful in properly selected cases as an adjunct to the usual medical and orthopedic measures. Chief indications for its use are chronic inflammation in a joint that has not improved with rest and physical therapy, pain and stiffness in osteoarthritis, and muscular spasm, spinal limitation of motion and pains in rheumatoid arthritis. The chief reasons of failure in 80 patients who did not respond to roentgen therapy were severe deformity or mechanical derangement of the joint. Cancer not found at the first X-ray examination and serious systemic disease. The authors' report corroborates statistically the accepted fact that rheumatoid arthritis of the spine responds best to irradiation.

### *Irradiation of Lymphoid Tissue in Diseases of Upper Respiratory Tract*

Roentgen therapy and contact radium treatment have been employed with marked symptomatic relief in the treatment of excessive lymphoid tissue in the nasopharynx, particularly about the Eustachian tubes.

As early as 1904, Joseph Beck of Chicago used roentgen therapy for a case diagnosed as catarrhal deafness. Contact radium has been a popular method of treatment among rhinologists since the work of Crowe and his associates. Roentgen therapy is quite "as satisfactory as radium and in addition is able to attack deeper parts of the Eustachian tubes" (Fowler). In 1936, Dr. O'Brien reported on 140 patients treated for catarrhal deafness with roentgen therapy. A little over 50% of the group improved following this treatment. The advocates of radium (Crowe, Polvogt and Proctor) condemn roentgen therapy. Others (Schulz and Robbins) condemn the routine use of the nasopharingeal radium applicator. If one is familiar with either method used, and understands its limitations one should not anticipate any unfortunate sequalae.

Acute sore throat including tonsillitis can be aborted by roentgen irradiation. Chronically infected tonsils should be removed surgically but when this cannot be done roentgen therapy may be used.

Anthony Rossiter (Wichita, Kansas) treated chronic infections of the postpharyngeal tissues and tonsils in children by roentgen therapy with good results which were obtainable when medical and surgical methods had failed. Cough, tonsillitis, sore throat, cervical adenitis, gagging and vomiting, mouth breathing with nasal obstruction, otitic complaints and some forms of asthma respond rapidly and results have been good in not less than 90% of the cases. In nearly all instances there was amelioration of the symptoms for which the child has been referred for treatment, and perennial colds and sore throats were eliminated. If a cold occurred after irradiation the course was short.

Uhlmann and his associates recently treated and examined 480 patients who had received roentgen therapy for recurrent colds, throat infections, impaired hearing and other symptoms associated with enlargement of the tonsils or with the existence of hypertrophied lymphoid tissue in the pharynx. The authors stated that 25% of all patients had complete cessation of the symptoms for which they were treated and 45% had so much improvement that they were considered well. In repeated infections of Waldeyer's ring with sore throats and cervical adenopathy present, radiation therapy is indicated and in most instances is prferable to surgery.

Donald F. Proctor reported his results of 1100 radium treatments given to 400 patients during the period from 1943-1947. His average follow-up was 13 months. In addition to radiation therapy the patients received surgical treatment of the tonsils or adenoids when indicated, and local treatment to the sinuses, nose or ears.

All these patients when first seen had swollen nasopharyngeal tissue; at the latest examination 99 had no lymphoid tissue in the nasopharynx, 167 had only minute traces and of 127 patients who at the first examination had a large mass of adenoid tissue, only 7 still had a mass. At the first examination only 29 patients had normal Eustachian tube orifices and at the last examination 255 had normal ones. Of the 147 patients who on first examination had lymphoid tissue completely covering the orifices only 11 had this condition at the last examination.

Seventy-one surgical removals of lymphoid tissue were carried out on the 400 patients during the observation period and 199 had had lymphoid tissues removed surgically before the first examination.

Audiometer tests were performed two or more times on 542 ears during the period. At the first test, hearing in 119 was normal, was slightly improved in 280, moderately impaired in 111 and seriously impaired in 32. At the last test the hearing of 234 ears was unchanged (101 of those normal on the 1st test), that of 284 had improved and that of 24 had grown worse. Of 33 ears with chronic discharge 12 healed completely, 9 became dry although perforations persisted and 12 continued to discharge. Of 94 patients with frequent acute aural infections 71 ceased to have infections. Of 178 patients subject to unusually frequent and severe upper respiratory tract infections, 113 stopped catching colds completely or had few mild colds. Of 19 patients with bronchial asthma, 9 no longer had attacks and 5 others were noticeably improved.

An increasing number of clinicians are recognizing the definite worth of irradiation for control of nasopharyngeal hypertrophied lymphoid tissue. Proctor uses an applicator containing 50 mg. radium sulphate in a cylinder permanently attached to a thin rigid handle 25 c.m. long. The filter is 0.3 mm. monel metal. One radium applicator is passed through each nostril and left in place for nine minutes. Treatments are repeated every three weeks until a satisfactory result has been obtained or until four treatments have been given.

We must, however, always bear in mind the potential hazards from radiation treatment of hypertrophied tissue in the nasopharynx because of its popularity in treating children and young adults. Dr. Lawrence Robbins and Milford D. Schulz (Mass. Gen. Hosp.) warn that routine irradiation of any sort is unwise; lack of immediate reaction is no insurance against the unknown danger which may not appear for 10-20 or more years. They described some late effects of irradiation occurring in 3 cases, one in an infant who was treated for a hemangioma of the forehead. Keratosis and ulcerations developed after 18 years and plastic surgery was necessary.

Following radiation therapy of a large port wine stain on the face improvement was noted in one of their cases reported for three years. Extensive plastic surgery was needed 23 years later when irradiated area broke down. An estimated 3500 r. was given a young man for chronic dermatitis of the hands. Extensive radiation change began to appear after 20 years, necessitating surgery for painful ulcerations. After 10 more years an epidermoid carcinoma developed in the irradiated area.

Exposure to beta and cathode rays for even brief periods can produce deleterious effects. Three of six men exposed for a short time to scattered cathode rays from a supervoltage generator in 1944 were seriously burnt and still carry scars of the injury. They received up to 2000 r. equivalents, about the same amount as delivered by the nasopharyngeal applicator in 12 minutes. It is questionable that the recommended treatment of 12 minutes is invariably safe. As a rule, doses of 1000-2000 r. to the skin cause no unexpected later results.

Robbins and Schulz suggest that before more than an erythema dose be given the seriousness of the lesion should be carefully considered. Acute erythema of the skin has been seen following as little as 400 mg. —minute mildly filtered radium or about 700 r. By increasing the dose, more severe sequelae can be expected. The mucous membrane of the nasopharynx seems to be as vulnerable as the skin. On this premise one may well expect that some children now being given radiation for hypertrophied lymphoid tissue may develop some degree of damage. The likelihood is diminished if radiation is limited to an erythema dose. Should radiation changes develop and progress to "necrosis" the outlook is poor, for the nasopharynx is not a suitable site for repair by plastic surgery. It is true that breakdown of atrophied irradiated tissue occurs infrequently and malignant degeneration even less often but for the patient in whom either misfortune occurs the end result is worse than the original condition. Fowler believes that Eustachian tube irradiation is useful in control of recurrent otitis media and prevention of the deafness it causes. It is not a panacea, however, for if chronic infection of the nose or petrous bone is present, it will be of little help. Many ear-, nose- and throatmen are not aware of the cumulative effects of radium on both themselves and their patients. Physicians using radium in the nasopharynx primarily for alleviation of deafness are bound to be disappointed. Radium is not advocated as a cure for deafness.

It is extremely important that accurate physical measurement of doses in roentgens be made as this will permit better assessment of the potentiality of late radiation damage. It should not be overlooked that many, if not most of the patients, are children. Their long life expectancy will give ample time for the evolution of radiation-induced changes.

*Cervical Lymphadenitis*

Cervical lymphadenitis of non-tuberculous origin in children is amenable to low voltage roentgen rays. Six treatments only of 100 r. at weekly intervals usually are adequate to produce regression. Roentgenograms of the chest should be taken to rule out tuberculosis. However, tuberculous adenitis if seen early often does equally well but care must be taken not to irradiate the apices of the lungs.

Karl Umbach (Tubingen) states that radiation therapy of tuberculosis of cervical lymph nodes is particularly effective when the infection is not of long standing. All 18 patients (in a series of 140) who had had nodal infection less than a month were healed. Among those with infection lasting up to six months, over 80% were healed and the rest were improved. Over 70% of those with infections lasting six months or more were healed by radiation therapy; 22.2% were improved and 7.4% were uninfluenced. All had hilar calcification varying from mild (89%) to moderate (8%) to severe (3%). Perforation occurred in 54.5%. Combined surgical radiological treatment produced good results in 47.9% of those whose nodes had broken down; in fact, healing was somewhat better in those whose nodes did perforate. Many therapists have had no breakdown of nodes even with concentrated therapy. Large, soft nodes were given small doses. Bertram believes that treatment is the most effective therapy. In stage 1 the nodes are firm and discrete; in stage 2 periadenitis supervenes and the nodes become mottled together; in stage 3 cessation and softening lead to cold abscess formation and there may be secondary infection giving rise to sinuses that will not heal.

*Thrombophlebitis*

Roentgen therapy of thrombophlebitis was reported first in 1906 and has since been used in isolated instances. John J. Bouslog (Denver) believes the results warrant its further use. He has found that irradiation shortens duration of illness, relieves symptoms more rapidly than many other therapeutic agents; provides a means of treating deep pelvic veins when surgery is not practicable and can be used in any phase of the disease.

The best results were obtained by irradiating both the iliofemoral region and the calf, especially from the politeal space down, unless the lesion extended along the knee joint. Dosage should be varied according to the severity of involvement.

*Rheumatoid Spondylitis*

Rheumatoid spondylitis is a chronic disease of unknown cause which can produce severe crippling deformities; it is particularly able to affect otherwise healthy young men. Clinically it is characterized by low back pain, progressive stiffness of the spine and fixation of the thoracic cage: X-ray changes occur chiefly in the sacroiliac and apophyseal joints in the anterior and lateral spinal ligaments. X-ray therapy is valuable to relieve pain and control muscle spasm. Following X-ray therapy exercises are given to maintain normal posture and to increase excursion of the thoracic cage. Of 28 patients treated by Elam C. Toone, Jr. (Med. College of Virginia) 7 had excellent results, 12 had substantial relief from pain and 9 had no significant relief.

Nathan M. Spishakoff and B. V. A. Low Beer reported their results on 125 patients treated since 1944 for rheumatoid spondylitis. Their results were analyzed on the basis of type of treatment: 3 courses, 2 courses, and course and local treatment. Symptoms were not relieved or recurred in 10 (13.8%) of 73 patients treated with 3 courses. In 13 (37.1%) of 35 receiving two courses and in 6 (54.5%) of 11 receiving only a single course. All patients treated locally had recurrence and subsequently were given treatments to the whole spine. The results indicate that roentgen therapy is warranted in active cases of rheumatoid spondylitis regardless of duration and severity of symptoms or stage of the disease as indicated by roentgenograms.

Smyth, Freyberg and their associates reported on 52 cases of spondylitis rhizomelique treated by roentgen therapy over a 3-year period in which 72% obtained a significant degree of subjective benefit and 50% objective clinical change. In this series none of the patients protected from irradiation by lead screens showed significant improvement but without exception when they were later treated by roentgen rays significant improvement occurred. In some, especially with early disease, striking relief of symptoms, particularly pain, occurred soon after the first series of treatments and some patients with partial calcification of ligaments showed a significant increase of motion and chest expansion when the pain in the back was relieved. These experiences have been further confirmed by Smith, Roland, Shebasta and Henck who treated 25 spondylitic soldiers with roentgen therapy alone, 25 with placebo therapy alone and 25 with deep breathing and postural exercises alone. These patients were observed in an army hospital for at least 180 days. Of those who received roentgen therapy 5 subjective improvement was noted in 56% and pronounced in 36% (total 92%); objective improvement was moderate in 60% and pronounced in 8% (68%). Of those given psychotherapy who went through the ritual as for roentgen therapy but received no radiation, subjective improvement was moderate in 28% and pronounced in 9% (total 37%). Objective improvement was moderate in 5% and pronounced in none. Of those given breathing and postural exercises alone, subjective improvement was

moderate in 40% and pronounced in 8% (total 48%); objective improvement was moderate in 32% and pronounced in 8% (total 40%). These results were notably in favor of roentgen therapy.

### *Acute Encephalitis*

Portmann and Lough treated 49 cases of acute encephalitis; 29 patients recovered, 15 improved, 1 died and 4 had no follow-up. All cases were treated as other inflammatory processes might be treated. Some patients with encephalitis recover spontaneously. However, roentgen therapy produced an immediate and dramatic relief of symptoms and signs in many of their patients. Improvement began within 2 or 3 days, and most patients were discharged in about two weeks, though kept under observation. The best results were obtained when roentgen therapy was given before degenerative changes were established in the central nervous system. No person with a chronic form of encephalitis or with a post-encephalitic syndrome such as Parkinson's disease was definitely benefited by irradiation.

### *Subacute Thyroiditis*

Osmond and Portmann describe 93 cases of subacute thyroiditis and quote Crile to the effect: "Subacute thyroiditis responds promptly and completely to roentgen ray therapy." They began using roentgen therapy for subacute thyroiditis in 1933.

Many other inflammatory lesions have responded to roentgen ray therapy. These include acute and chronic sinusitis, herpes Zoster, acute suppurative parotitis, thromboangiitis obliterans.

## Conclusions

In considering irradiation of inflammatory lesions one always is fearful that one may exceed the proper sphere of this great agent in the cure and alleviation of disease. As knowledge of irradiation was developing, there is no doubt it was used in many conditions in a hopeful way only to be abandoned when results were not beneficial or were equivocal. Accepting the idea that radiation may have a psychosomatic effect in relieving pain, the evidence on hand, in the conditions considered here appears to be strong evidence against it being the only or chief effect. In the last analysis the effect of irradiation on the inflammatory process is most probably a chemical change resulting from ionization with corresponding cellular and vascular alterations of histologic structure.

Radiation therapy is useful in properly selected cases as an adjunct to the usual medical, surgical and orthopedic measures used in treatment of the previously described conditions.

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In 1937, Wade H. Frost concluded that the point had been reached in the United States where there is a gradual downward trend in the incidence of tuberculosis, and that, barring major upsets in civilization, the eventual eradication of the disease can be expected. The continued decline in the annual number of deaths from tuberculosis during the past 12 years, in spite of the adverse conditions caused by a great war, is ground for confidence in the accuracy of Frost's conclusion.—A. C. Christie, M. D., *Pub. Health Reports,* June 2, 1950.

# CLINICO-PATHOLOGICAL EXERCISE

Presentation: Romeo A. Beliveau, M. D.

Discussion: Alcide Dumais, M. D.

Patient is a male, 45 years of age, admitted to the hospital complaining of severe abdominal pain for 24 hours.

*Past History:* About 20 years ago had a urinary calculus removed successfully. Otherwise well until about 1 year before admission when he began to have attacks of epigastric pain, especially after the ingestion of alcohol of which he drank two bottles a week. The attacks of pain increased in severity and frequency and occurred daily during the last three months. The pain occurred in the epigastrium, burning in character and did not radiate. It seemed unrelated to any type of food but as time went on seemed to occur before meals and to be somewhat relieved by food. No history of nausea, vomiting or tarry stools. Not influenced by any medication or diet. During the year there was a weight loss of 35 pounds.

*Present Illness:* The onset was sudden and occurred while the patient was driving an automobile. The pain was very severe, not cramp-like in character and at first localized in the epigastrium. The complaint was aggravated when the patient was in the upright position. Several hours after the onset, it shifted to the lower part of the abdomen and there was a constant ache in the left costo-vertebral angle. No nausea or vomiting occurred, but about 12 hours after the pain began, hiccoughs developed and continued until the time of admission. No cramps or diarrhea. Codeine was administered but the pain continued severe enough to prevent sleep.

*Physical Examination:* Temperature 98.4, pulse 110, respiration 20. Twenty-four hours after the onset, the general appearance suggested a moderate amount of shock although the skin was warm and dry. No cyanosis, oedema or jaundice. No lymphadenopathy noted. Heart normal in size, rhythm regular and sounds of good quality. Blood pressure 115/75. Lungs clear.

Abdomen full but not greatly distended. On light palpation the only tender area was in the epigastrium. On deep palpation there was generalized tenderness with definite muscle spasm, particularly on the left. Tenderness in the left costo-vertebral ange. Liver not enlarged, no masses palpable. Peristalsis present. Reflexes active and equal.

*Laboratory Findings:* Hemoglobin 16.5 gm. — RBC. 5,000,000 — WBC. 15,000 with 90 per cent polys. Urine: slight trace of albumin, otherwise normal. Serum amylase 60 per cent of the average normal. Blood sugar 84 mg. NPN 38.

X-ray of the abdomen with patient erect showed no free gas under the diaphragm. EKG normal in appearance.

*Progess in Hospital:* For five days the patient improved gradually but continued to have dull pain in the lower part of the abdomen. Had daily normal bowel movements. A barium meal showed a dilated loop of small bowel in the right upper quadrant but the obstruction was not complete. On the sixth day, the pain increased, hiccoughs returned and the pulse rose from 70 to 120. The symptoms persisted, and on the 8th day a laparotomy was performed.

## Discussion

*Dr. Dumais:* To begin with, let me say that the past history of urinary calculus is only a red herring and has nothing to do with the present condition. I think that the history of alcohol as reported is important: chronic alcoholism causes gastritis and gastritis is a potential ulcer. The loss of weight can be accounted for by the stomach disturbances during the last year. The sudden onset of severe pain is consistent with an ulcer which may have perforated somewhere in the posterior aspect and the peritonitis be limited to the area in the region of the lesser omentum masking the classical picture with board-like rigidity. The fact that the X-ray showed no air does not rule out that condition.

But several other conditions have to be thought of. First is acute pancreatic necrosis. This is suggested by the left muscle spasm and the pain in the costo-vertebral angle. However the amylase finding is against that condition although only a small portion of the organ may become involved with the resulting improvement such as we have here.

Coronary occlusion can be ruled out by the normal tracing and the absence of nausea and vomiting. There is no sense of constriction and no pain in the arm.

Acute intestinal obstruction will give nausea, vomiting and distension.

*Dr. Damais' Diagnosis:*

1. Perforated ulcer of the stomach into the lesser omentum.
2. Pancreatitis.

*Dr. Chevalier:* Has mesenteric thrombosis been thought of?

*Dr. Dumais:* There is no history of bloody stools.

*Dr. Thomas:* How about a diaphragmatic hernia?

*Continued on page 440*

# EDITORIALS

## The Fall Clinical Session

Approximately 200 members of the Maine Medical Association were present at the Fall Clinical Session in Bangor, October 15 and 16, and the regular meeting of the Penobscot County Medical Society on October 17.

The session was sponsored by the Penobscot County Society and the program arranged by Dr. Herbert C. Scribner and Dr. Clement S. Dwyer. The program, which was planned to be of interest to both the specialist and general practitioner, certainly fulfilled its aim.

Mr. Milton McGorrill of Orono, was the speaker at the opening session, Sunday evening, October 15, at the Bangor House.

Clinics at the Eastern Maine General Hospital on Monday, were conducted by Drs. Magnus F. Ridlon, Allison K. Hill, Lloyd Brown, Joseph E. Memmelaar, Wilfrid J. Comeau, Richard C. Wadsworth, Leonard G. Miragliuolo, Robert O. Kellogg, Martyn A. Vickers, Albert W. Fellows, Wilbur B. Manter and Peter S. Skinner, all of Bangor, Dr. Asa C. Adams of Orono, and Dr. Winford C. Adams of Brewer.

The Staff of the Eastern Maine General Hospital entertained members of the Association and the Woman's Auxiliary at a Cocktail Party at the Bangor House from 5.00 to 7.00 P. M. This provided a nice bit of relaxation between the all day Clinics and the Scientific program of the evening.

C. Stuart Welch, M. D., of the Pratt Diagnostic Clinic, Boston, was the speaker at the dinner meeting that evening. His subject was "Controversial Aspects of the Surgical Treatment of Peptic Ulcer."

Dr. William Dameshek of Boston, and Dr. Welch, conducted a Symposium on Hematology at the Eastern Maine General Hospital, on Tuesday, October 17. Dr. Dameshek, guest speaker at the meeting that evening, spoke on "Hematology, Past, Present and Future."

The Woman's Auxiliary to the Maine Medical Association met on Monday, October 16, during the Clinical Session. Their program consisted of a business and general meeting at the Eastern Maine General Hospital and dinner at the Tarratine Club.

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## 1950 AMA Dues

The American Medical Association has announced that no member would be in good standing in the AMA in 1951, if his 1950 dues of $25.00 remain unpaid. Therefore, if you have not paid your 1950 AMA dues, you will have to pay $50.00 if you want to be a member of the AMA in 1951. In 1950, the $25.00 was paid as dues, and the subscription to the *Journal of the American Medical Association* was extra. In 1951 your subscription to the *Journal of the American Medical Association* will be included when you pay your $25.00 dues.

The Maine Medical Association has only 153 members who have not paid their 1950 AMA dues. If you are one of these why not send your check for $25.00 to the Maine Medical Association, 142 High Street, Portland 3, Maine.

## COUNTY SOCIETIES

**Androscoggin**
President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

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President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

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Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

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President, George I. Higgins, M. D., Newport
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President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

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President, Harland G. Turner, M. D., Norridgewock
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Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Androscoggin

A regular meeting of the Androscoggin County Medical Society was held at the Central Maine General Hospital, Lewiston, Maine, September 21, 1950, at 8.30 P. M.

Dr. Rudolph Haas and Dr. R. A. Beliveau were appointed by the president to represent the County Society in the newly formed Community Council.

Dr. Charles F. Branch, newly appointed director of the Pathology Department of the Central Maine General Hospital, gave a very interesting presentation of the history of the development of the present cancer control program, and an equally informative discussion of the history, development program, and program integration of the American Cancer Society, the American College of Surgeons, the United States Public Health Service, and other organized agencies operating in the cancer field.

DEAN FISHER, M. D.,
*Secretary.*

## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, Maine, October 11, 1950. There were thirteen members and five guests present.

Dr. E. A. Brown of Boston, gave an interesting and instructive talk on ACTH, which was followed by extensive discussion.

CHARLES H. KNICKERBOCKER, M. D.,
*Secretary.*

## Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Augusta House, Augusta, Maine, September 21, 1950, at 7.00 P. M. There were thirty-eight members present.

Members of the Woman's Auxiliary were invited to hear the speaker of the evening, Shields Warren, M. D., of Boston, Director of the Division of Biology and Medicine of the Atomic Energy Commission. Dr. Warren's subject was "Recent Progress in Medical Aspects of Atomic Energy." He briefly reviewed the uses of atomic energy in peace, and discussed at great length their military uses.

A. H. MORRELL, M. D.,
*Secretary.*

## Oxford

The annual meeting of the Oxford County Medical Society was held at Bethel Inn, Bethel, Maine, Wednesday, October 11, 1950. The meeting was called to order by the President, Dr. Linwood Rowe.

The following officers were elected for the coming year:

President, Dr. Alfred Oestrich, Rumford.

Vice President, Dr. Edward L. Reeves, South Paris.

Secretary-Treasurer, Dr. Dexter E. Elsemore, Dixfield.

Auxiliary Committee on Legislation, Dr. Chesley W. Nelson.

Councilors: Dr. Henry M. Howard, Dr. Garfield G. Defoe and Dr. Walter G. Dixon.

Delegates to the Maine Medical Association: Dr. John A. Greene, Rumford (1 year), Dr. Elsemore (2 years).

*Continued on page 434*





*"A high percentage of cases of seasickness and carsickness can be aborted or prevented by suitable doses of dimenhydrinate (Dramamine)."*

—Cauncil an Pharmacy and Chemistry, New and Nanafficial Remedies, J.A.M.A. 143:815 (July 1) 1950.

DRAMAMINE® Brand of Dimenhydrinate—for the prevention or treatment of motion sickness—is supplied in 50 mg. tablets and in liquid form.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

*Continued from page 432*

Alternates: Dr. Albert P. Royal, Rumford (1 year), Dr. Pierre B. Aucoin, Rumford (2 years).

Dr. Louis A. Asali of Portland, guest speaker at the Scientific Sesssion, presented a paper on "The Diagnosis and Management of Upper Gastro-Intestinal Bleeding."

D. E. Elsemore, M .D.,
*Secretary.*

## Somerset

A regular meeting of the Somerset County Medical Association was held at the Lancey House, Pittsfield, Maine, October 31, 1950.

Kurt Jessner, M. D., of the Central Maine Sanatorium, Fairfield, was elected to membership.

Wilfrid A. Comeau, M. D., of Bangor, guest speaker of the evening, spoke on "Recent Advances in Cardiac Diagnosis and Therapy."

H. Carl Amrein, M. D.,
*Secretary.*

## York

The Fall Meeting of the York County Medical Society was held on Wednesday, October 11, 1950, at the Henrietta Goodall Hospital, Sanford, Maine, at 1.00 P. M. There were twenty members and five guests present.

Chester W. Howe, M. D., Director of the Surgical Laboratory at the Massachusetts Memorial Hospital, spoke on "Surgical Wound Infections."

Plans for Diabetes Week, November 12-18, will be carried out by the hospitals in this area.

C. W. Kinghorn, M. D.,
*Secretary.*

## New Members

### Somerset

*Kurt Jessner, M. D.,* Central Maine Sanatorium, Fairfield.

# NEWS AND NOTES

### Meeting of the New England Rheumatism Society at Amphitheater D Harvard Medical School 25 Shattuck Street

November 20, 1950.

8.15 p. m. Business Meeting.

8.30 p. m. Scientific Meeting.

Cyril N. H. Long, M. D., Dean and Professor of Physiological Chemistry at Yale University School of Medicine. "The Mechanism of Secretion of ACTH."

Discussion by:

1. Albright, Fuller, M. D.
   Massachusetts General Hospital.
2. Astwood, Edwin B., M. D.
   New England Center Hospital.
3. Hume, David, M. D.
   Peter Bent Brigham Hospital.

### Department of Health and Welfare Services for Crippled Children Clinic Schedule — 1950

Orthopedic Clinics

*Portland* — Maine General Hospital, 9.00-11.00 a. m.: Jan. 9, Feb. 13, Mar. 13, Apr. 10, May 8, June 12, July 10, Aug. 14, Sept. 11, Oct. 9, Nov. 13, Dec. 11.

*Lewiston* — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 20, Feb. 17, Mar. 17, Apr. 21, May 19, June 16, July 21, Aug. 18, Sept. 15, Oct. 20, Nov. 17, Dec. 15.

*Rumford* — Community Hospital, 1.30-3.00 p. m.: Mar. 15, June 21, Sept. 20, Dec. 20.

*Waterville* — Thayer Hospital, 1.30-3.00 p. m.: Feb. 23, Apr. 27, June 22, Aug. 24, Oct. 26, Dec. 21.

*Rockland* — Knox County Hospital, 1.30-3.00 p. m.: Feb. 16, May 18, Aug. 17, Nov. 15 (Wednesday).

*Machias* — Normal School, 1.30-3.00 p. m.: Feb. 8, Apr. 12, June 14, Aug. 9, Oct. 11, Dec. 13.

*Presque Isle* — Northern Maine Sanatorium, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 10, Mar. 8, May 9, July 12, Sept. 12, Nov. 8

*Houlton* — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 7, July 11, Nov. 7.

*Fort Kent* — Normal School, 9.00-11.00 a. m. — 1.00-3.00 p. m.: Jan. 11, May 10, Sept. 13.

*Bangor* — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 26, Feb. 23, Mar. 23, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 16, Dec. 28.

Cardiac Clinics

*Portland* — Maine General Hospital, 10.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

*Bangor* — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec 29.

Hard-of-Hearing Clinics

*Waterville* — Thayer Hospital, 1.30-3.30 p. m.: Feb. 15, June 7, Sept. 6, Dec. 6.

Pediatric Clinic Schedule — 1950

*Bangor* — Eastern Maine General Hospital, 1.30 p. m.: Jan. 27, Feb. 24, Mar. 24, Apr. 28, May 26, June 23, July 28, Aug. 25, Sept. 29, Oct. 27, Nov. 17, Dec. 29.

*Waterville* — Thayer Hospital, 1.30 p. m.: Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2, June 6, July 11, Aug. 1, Sept. 5, Oct. 3, Nov. 7, Dec. 5.

*Presque Isle* — Northern Maine Sanatorium, 1.30 p. m.: Jan. 25, Mar. 22, May 24, July 26, Sept. 27, Nov. 29.

# *Proceedings*

## NINETY-SIXTH ANNUAL SESSION

## Maine Medical Association

## House of Delegates

### POLAND SPRING, MAINE

### June 18, 19, 20, 1950

(Continued from the October Issue of the JOURNAL, page 411.)

CHAIRMAN SMALL: At this time, we would like to have a report from the Delegate to the American Medical Association, Dr. Thomas A. Foster of Portland.

DR. FOSTER: At this time, Mr. Chairman and members of the Association, I want to thank you all for electing me to a position that has proven to me to be a great experience, and one that I shall never forget, and that is the opportunity to meet some of the active practitioners of medicine throughout the country, and the opportunity to enjoy their ferocious hospitality, and still exist!

The AMA, as you know, at the last meeting, declared dues of $25.00, and that was the most unusual event of the meeting. They decided to employ Whitaker and Baxter for another year, to continue the Educational Campaign.

A more detailed report has been published in the Maine JOURNAL, so that I think it is unnecessary for me to amplify it.

The meeting this year will be held in San Francisco, for which glamorous city Mrs. Foster and myself will depart on Tuesday, and I shall have a report for the JOURNAL, if I live and return successfully.

Attending these meetings has been a great experience which I appreciate very, very much. It is rather a strenuous occupation now, because the AMA has two meetings a year, the Annual Meeting in June and the Clinical Interim Meeting in December. It means two long sessions away from home; but, it is certainly an experience which anyone might envy, for one can derive a great deal of profit from these meetings, and I can assure you that the Delegates and the officers of the AMA are on the job.

I have with me a handbook published this year; it is a book setting down the organization of the AMA, the establishment of the various councils, the establishment of the various committees, the work which they do. And I can assure you that they do plenty of work. I know that anyone who is a member of the Association is welcome to go to any meeting of the House of Delegates at any time. They haven't the privilege of voting, but they are welcome to go to the meetings and listen to the deliberations.

There are delegates from all over the United States, Hawaii, and Alaska. It is unusual for a delegate to be absent. The delegates from all the various sections of the group comprise a body of 175 men, and they attend the meetings from the beginning to the end; they have many resolutions to consider, and the resolutions are referred to the Reference Committees. The Committees meet, discuss the resolutions and bring back the conclusions to the House, and discuss the conclusions and vote "Yes" or "No."

I feel very sure that the Officers and Delegates and the Trustees are working harder and harder in order to carry on the duties of their respective offices.

I know that the House of Delegates of the AMA believes, sincerely, that the AMA has made great process in presenting to the people the value of the present way of practicing medicine, and we believe that great bodies move slowly and that they have to go slowly; but, we believe that they have taken the important steps in pushing the voluntary health programs and the medical service programs. We think that great progress has been made.

I hope that more men from Maine can go to the meetings. Next year, the meeting will be held at Atlantic City. Plan to go to that meeting in June, and go in time to participate in the House of Delegates' meetings.

CHAIRMAN SMALL: I am sure that the House of Delegates and the members assembled, as well as the entire membership of the State of Maine of this Association, appreciate the faithful work that Dr. Foster has performed in behalf of medicine, not only in the State of Maine, but in the country. We are exceptionally proud of the wonderful work he has done in that office as delegate of the Association to the AMA. Thank you, Dr. Foster.

At this time, is there any unfinished business?

We will take up the matter relative to the Amy W. Pinkham Fund.

DR. FOSTER: If time permits, I should like to have the Chairman of the Amy W. Pinkham Fund outline the history of the Fund to the Delegates.

DR. EBBETT: Of course, this fund was left by the Amy W. Pinkham Estate, and the Fund was left for the benefit of undernourished or tuberculous children, preferably in rural districts.

The money was left, to be spent, I think, by the Maine Public Health Association, under advisement by a Committee from the Maine Medical Association; at least, that is the way that it was decided by the Judge of Probate. In other words, we don't have the spending of the money; but, the others don't have it, except under advisement from our Committee.

This fund was definitely for that purpose, and the ruling of the Judge left it in the hands of the Maine Public Health Association, as advised by a Committee from the Maine Medical Association. The Fund was $20,000. Only the interest from the Fund can be used; we cannot dip into the principal. So that if you get 4 per cent, you get more money to spend than you do when interest rates are low.

DR. FOSTER: I believe the money is conservatively invested.

DR. EBBETT: Seemingly, they want to invest it conservatively, and that, we don't have anything to do with.

DR. FOSTER: I don't know whether you want any further explanation of what this is for or not; but, that is what the fund was set up for. May I say this: Amy Pinkham had tuberculosis in her early years, and she taught school during her early and busy life. I bring that in as an indication that some of us felt that the testator would approve of spending money for the education of tuberculous children, as well as the other aspect of the fund. At the Probate Court, I read the will, and there was nothing in the will that said it shouldn't be spent for that purpose; it is to be spent for undernourished,

tuberculous children. We know that Amy Pinkham was a school teacher and that she devoted her life to teaching children; therefore, it has been felt that the interests of the Fund would not be going too far astray if the Fund were used to pay for a teacher for the tuberculous children. However, the tuberculous children in the State of Maine are widely scattered, and if time and money were spent for one teacher for one area, there should, perhaps, be other teachers in other areas.

The Maine Public Health Association did make a survey of the schools in Maine, and, much to the surprise of those who read the surveys, most of the schools were serving pasteurized milk.

Dr. Nickerson: What did Dr. Foster do with that report or survey when he got it back from the Maine Public Health Association? I was on the Amy Pinkham Fund Committee at that time but I never saw the report of the survey.

Dr. Foster: The survey was published, and part of the survey was, I suppose, in the office of the Maine Public Health Association.

Dr. Nickerson: You were Chairman of the Committee, Tom, and you were the only one who saw the report of the survey as made by the Maine Public Health Association, and when you say that you would like to make a report of the minority, you might say that you want to make your report, for you were the only one who voted against it, so you can say my personal report.

Dr. Foster: Perhaps to help somewhat to throw some light on what the Fund was for, this discussion may have been enlightening.

Chairman Small: We will leave that in the hands of the Committee, unless I hear some objection to that.

It has been customary to have reports from the various Committees whose reports have not been printed in the Journal. It has been called to my attention that we have a Committee on the Educational Campaign, and that report is in the Journal, but I understand that Dr. Vickers would like to say a word or two. Dr. Vickers, you now have the floor.

Dr. Vickers: I have two things that I should like to say; they are short and to the point.

In the first place, there is a reorganization plan before the Senate of the United States, the so-called plan of reorganization, No. 27. It is essentially the same as the Reorganization Plan No. 1, which was defeated a year ago. The purpose of this is to make a Cabinet Member of Mr. Ewing.

I have a telegram which was sent to me from the House of Delegates of the AMA, from Deering Smith, who is Chairman of the Committee on Legislation for the AMA; he feels that he needs support to help defeat the bill.

I should like to have a resolution passed by this House of Delegates, and have a telegram sent to Senator Taft, who is the speaker heading the resistance on this particular program, and I should like to have the resolution passed today, and the telegram sent. I don't know the procedure necessary for the House to do that, but it ought to be done today.

Secondly, there is also before the Senate today the so-called Social Security Bill 6,000, which has to do with increasing the number of people on Social Security. They are going to try to put back into that this total disability clause, which the AMA has been resisting strenuously. Senator Cain from Washington has put a resolve into the Senate, the purpose of which is to review the entire Social Security Program, before it is passed, and it is felt by the AMA, and I feel, and many others feel that this resolve should be passed, if possible. We can only help that by sending Senator Brewster a resolution to that effect, asking that Senator Cain's resolution be given precedence before the passing of the bill No. 6,000.

These are the two particular things that I should like to have done.

I want to thank the men on the Committee. There has been a tremendous amount of work done, and I can assure you it is a time-consuming job to read all the material that comes in over my desk from the AMA, just as Mayo Payson has said. I have given forty-two different talks in our section of the State, against the program of socialization of medicine. I never call it just that. And there is a great deal more work to do.

The reason I wanted the money put into the budget for the program was because I felt that soon it may get to the point where men are doing a lot of work and it may be necessary to reimburse them for expenses that they have to put out on this.

I want to say that we have had tremendous coöperation from the druggists, and from Francis Frawley, Secretary of the State Association.

Chairman Small: Thank you, Dr. Vickers. The Chair will entertain a motion that these two matters be referred to the Committee on Resolutions, with power to act.

Dr. Charles E. Towne, Waterville: I move that these two matters as suggested by Dr. Vickers, be referred to the Committee on Resolutions, with power to act.

This motion was duly seconded and was carried.

Chairman Small: At this time, is there any business that any of the delegates wish to bring before the meeting?

Dr. Robert W. Belknap, Damariscotta: I want to present a resolution from my Society, urging the passage of an anti-vaccination act. I presented this last year and it was not approved by the Reference Committee, still our County Society is unanimous in sponsoring such a resolution.

Chairman Small: You have heard Dr. Belknap's proposal, which is a resolution by the Lincoln-Sagadahoc County Society, and as I recall it, it was recommended that no action be taken at that time.

The Chair will entertain a motion to refer this to the proper committee.

Dr. Belknap: Let me put it this way. Our County Society urges that this be voted in favor of a State vaccination compulsory act. And I present that as a motion, that the Committee on Legislation present a resolution to the Legislature, recommending the passage of a compulsory vaccination act.

Chairman Small: If it meets with your approval, we could refer that to the Reference Committee, for their report to the assembly tomorrow afternoon.

A Doctor: I move that this be referred to the Reference Committee, to be reported on tomorrow afternoon, for action.

This motion was duly seconded and was carried.

Chairman Small: Tomorrow afternoon, we have the election of the Councilors for the Third and Fourth Districts. So that if the Delegates from those Districts will get together and submit the candidates you desire for your Councilors for those Districts, the Chair would appreciate it.

There will also be the election of the President-Elect, which takes place at the General Assembly.

At this time, I want to call upon Dr. Steele, to make a few remarks relative to the Committee on Civilian Medical Defense and its work.

Dr. Charles W. Steele, Lewiston: I should like to give you a short supplement to the report which appeared in the June issue of the Journal in regard to Civil Defense matters. The Committee had a meeting this afternoon and undertook to discuss some additional matters which were not covered in this written report. I think that all of you should know what the present thinking of the Committee is in regard to the most recent problems in Civil Defense which have been up for consideration, as you may be concerned both as a group and as individuals.

The Committee on Emergency Civilian Medical Defense discussed the Public Health Aspects of Civil Defense at the meeting today; and it was voted to recommend that the State Department of Health and Welfare be assigned the responsibility in time of serious disaster for all the activities and functions normally assigned to this well organized and staffed agency. In brief, these duties and responsibilities would include the following important functions, namely: inspection

of food, milk and water supplies; emergency sanitation in disaster areas and in shelters, auxiliary hospitals, convalescent hospitals and displaced persons camps; prevention of epidemics by quarantine of communicable disease cases, isolation of contacts and mass immunizations; collecting and recording the necessary vital statistics; and providing necessary biologicals and vaccines.

The fact that a very recent communication from Washington would seem to indicate that the Federal government agency charged with civil defense planning at the National level is prepared to make essentially the same recommendations as have been voted by your own committee in respect to the fixing of responsibility for the Public Health Aspects of Civil Defense, may prove of additional interest to the President and House of Delegates.

On the other hand, your Committee on Emergency Civilian Defense is on record as being in full and complete disagreement with a further recommendation of this same Federal agency when it suggested that the Governor of each state should also make the Medical Director of the State Department of Health responsible for the Medical Care Aspects of Civil Defense. The members of your committee were unanimous in their belief that the members of the medical profession and members of the active staffs of the general hospitals within this state should be better qualified to handle the medical care aspect of civil defense and that the responsibility should, therefore, be theirs.

The members of the committee were in complete agreement on one additional point and that was the fundamental importance of and the absolute necessity for fixing responsibility for the public health and for the medical care aspects of civil defense at the state and local levels. Unless these responsibilities are carefully defined and specifically assigned, serious confusion and unnecessary misunderstandings certainly arise.

Then, there is the big problem of training the necessary personnel; in such things as first-aid and in how to evacuate casualties from disaster areas; and it is the feeling of the Committee that the Red Cross should probably be entrusted with responsibility for training Civilians in these matters. In this connection it was deemed quite essential that medical representatives should go over the program and should be entirely familiar with it in order that the doctors throughout this state know about the first aid instruction which is being given to the laiety. Your committee also discussed the advisability of and voted in favor of asking the high school, college and university authorities to incorporate into their physical education classes the Red Cross Standard *First Aid* Course. It is believed that a great many people may be trained in first aid under such a combined program and with a minimum of inconvenience to all concerned.

It is expected that the Presidents and Secretaries of the county medical societies may be asked for advice about setting up first aid stations, collecting stations, clearing stations, etc., by the county civil defense directors. The latter will want to know how many of the above installations will be needed and where they should be located. Your committee will try to keep you informed through the JOURNAL of the Maine Medical Association of all the pertinent and helpful facts that may come to the committee's attention through directives which may come down from Washington and about any new developments that materialize at the state level in Maine. Your committee does not expect that many of you will be able to follow through on all of the recommendations in regard to the ideal Civil Defense organization or that you will be able to set up and equip an entirely adequate number of first aid stations, collecting points, clearing stations and auxiliary hospital installations; but it is our hope that you will do the best you can with what you have to work with.

Your committee has already published articles dealing with various aspects of Civil Defense, because those are the things that you may need to know about some day. Additional articles will follow; and it is hoped that the information they contain will prove of value to you should disaster suddenly strike one day in this State.

There is one point that ought to be called to your attention and that is the blood donor program. You have a blood bank committee and for that reason the committee on Emergency Civilian Defense has purposely refrained from making any previous reference to or recommendations about a blood procurement program. However, it seems to me that you should at least be made acquainted with comments which I heard repeatedly at the meeting I attended in Chicago and in Washington last month to the effect that unless the doctors come up with a blood procurement program which is adequate throughout the nation to meet the tremendous demand for blood and blood derivatives, in event of another world war in this atomic age, either the Red Cross will be assigned that responsibility or there will be a governmental agency set up to handle it. I just want to pass that along to you for what it is worth, Gentlemen. I think that you have capable men on your blood bank committee and I know they have devoted a good deal of time and study to these problems prior to making their report and their recommendations which have been published in the June, 1950, issue of the JOURNAL. I would certainly urge all of you to support the recommendations of that Committee; for unless you do give these recommendations your whole-hearted support, I am afraid that we may well end up by having to deal with people in a special federal agency set up in Washington to operate our blood banks, and I am sure very few of us want to do that if it can be avoided for obvious reasons.

I want to thank the members of the Committee on Emergency Civilian Defense for their support and the amount of time that they have devoted to working out solutions for these problems. We have a lot more work that will have to be done sometime in the future; but, much progress has already been made in respect to the medical Aspects of Civil Defense and Public Safety Planning.

I also want to thank the Council and the House of Delegates of the Maine Medical Association for the support they have given this Committee.

CHAIRMAN SMALL: Thank you, Dr. Steele.

At this time, before we adjourn, I am going to ask our President if he has anything that he would like to say.

PRESIDENT GOODWIN: I have nothing in mind at this time. At a later time, I should like to thank the Association for the coöperation that we have had. I hope there will be a good attendance at all of the functions that we are going to have for the next three days.

CHAIRMAN SMALL: If there is no further business to come before the meeting, I will entertain a motion to adjourn.

DR. VICKERS: I move that we adjourn.

This motion was duly seconded and was carried. (Adjournment at 5.15 o'clock in the afternoon.)

## SECOND SESSION

The Second Session of the House of Delegates of the Maine Medical Association convened at 5.30 o'clock in the afternoon, June 18, 1950, at the Poland Spring House, Poland Spring, Maine, with Chairman Small presiding.

CHAIRMAN SMALL: The meeting will please come to order, and we will proceed with the business of the afternoon. We have a lot of business to transact, so we shall try to be as prompt as possible in the presentation of these matters.

First, our Secretary will call the roll. (Secretary Carter than called the roll. There were twenty-four delegates present.)

CHAIRMAN SMALL: We have a quorum sufficient for the transaction of business, ten being necessary for a quorum.

First on the agenda is the report of the Chairman of the Nominating Committee, Dr. James M. Parker.

DR. JAMES M. PARKER, Portland: Mr. Chairman and members of the House of Delegates. The Nominating Committee, in deciding upon the following candidates for nominations, has taken into consideration the fact that many of these committees became particularly active during the past year, and, consequently, we have presented a slate with relatively few changes, as you will notice.

(Dr. Parker then read the report of the Nominating Committee, which was published in the July, 1950, issue of the JOURNAL, Page 297.)

CHAIRMAN SMALL: You have heard the report of the Nominating Committee. What is your pleasure?

DR. WESLEY N. WASGATT, Rockland: I move the acceptance of the report of the Nominating Committee as read.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: Now, it will be necessary to take a special vote relative to the delegate to the AMA. What is your pleasure?

A DOCTOR: I move that Dr. Martyn A. Vickers of Bangor, be elected as the Delegate to the AMA.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: Next, is the election of the Councilors for the Third and Fourth Districts. The Chair will entertain any nominations which you may have.

DR. ROBERT W. BELKNAP, Damariscotta: I would like to nominate Francis A. Winchenbach of Bath, for Councilor for the Third District.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: For the Fourth District, do I hear any nominations for the office of Councilor?

DR. ARCH H. MORRELL, Augusta: The delegation from the Fourth District has requested that I place in nomination the name of Dr. Raymond L. Torrey of Searsport, as Councilor for the Fourth District.

This motion was duly seconded and was carried.

(To be continued in the December Issue of the JOURNAL.)

## HOSPITAL STAFF MEETINGS

Open to the Profession

| CITY | HOSPITAL | DATE |
|---|---|---|
| Augusta | Augusta General Hospital | 1st Wednesday |
| Bangor | Eastern Maine General | 2nd Tuesday |
| Bath | Bath Memorial Hospital | 1st Tuesday |
| Belfast | Waldo County | 2nd Friday |
| Biddeford | Webber Hospital | 2nd Thursday |
| Boothbay Harbor | St. Andrew's Hospital | 4th Tuesday |
| Caribou | Cary Memorial | 1st Wednesday |
| Damariscotta | Miles Memorial | 2nd Thursday |
| Farmington | Franklin County Memorial | 2nd Monday |
| Greenville | Charles Dean Hospital | 2nd Wednesday |
| Hartland | Scott Webb Memorial Hospital | 1st Wednesday |
| Lewiston | Central Maine General | 1st Monday |
| | St. Mary's General | 2nd Monday |
| Portland | Maine Eye and Ear Infirmary | 1st Tuesday |
| | Maine General | 2nd Friday |
| | Mercy | 3rd Thursday |
| Presque Isle | Presque Isle General | 1st and 3rd Tuesdays |
| Rockland | Knox County General | 1st Monday |
| Rumford | Rumford Community | 4th Wednesday |
| Sanford | Goodall Memorial | 2nd Monday |
| Waterville | Sisters | 2nd Tuesday |
| | Thayer | Every Thursday |

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

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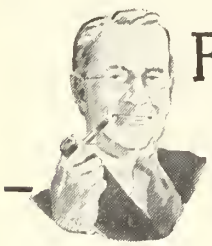
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From where I sit
*by* Joe Marsh

## Ought To "Polish Up" Her Traffic Manners!

*Spent most of yesterday over at the Court House. "Tiny" Fields, the biggest and fastest-talking of our three policemen, was holding forth about his traffic troubles.*

"Women drive just as good as men do," Tiny said, "and just as bad. For instance—a girl in a convertible today. She started a three-block tie-up all by herself.

*"She's creeping down Main Street —left hand stuck out and sort of waving around. Never turns right or left, never stops. But, of course, everyone behind her thinks she's signaling about something. Nobody dares to pass. When I stop her and ask what's up, she smiles sweetly and explains that she's drying her nail polish!"*

From where I sit, that girl's typical of certain folks who are so wrapped up in themselves, they never notice they're not being fair to others. Our neighbor has a *right* to drive in safety —just as he has a right to enjoy a glass of beer. Let's all respect the other fellow's rights.

Joe Marsh

*Copyright, 1950, United States Brewers Foundation*

*Continued from page 439*

*Dr. Dumais:* There is a possibility but it seems to me that the X-ray would show it.

*Dr. Molnar:* I believe the picture as presented here could well be caused by a pancreatic stone.

*Dr. Bluhm:* The picture could also be caused by a retroperitoneal hemorrhage. It is possible that the man may have a dissecting aneurism of the upper abdominal aorta which is not too uncommon at his age even with a negative serology.

*Dr. R. Beliveau:* Hasn't anyone thought of perinephritic abscess?

*Dr. Dumais:* Although the blood count, costovertebral tenderness and the course seem to favor that diagnosis I eliminated a perinephritic abscess because of the sudden onset, rectus muscle spasm and lack of temperature.

### Findings

*Dr. Beliveau:* On learning of the findings at surgery one is impressed by the inability of the examiners to palpate the tumor which consisted of a rather large but smooth cyst of the tail of the pancreas and containing a little more than 1000 c.c. of dark, almost black fluid throughout which could be seen streaks of fresher blood. The fresher blood accounting for a recent episode of bleeding which may have come suddenly at the time of his acute attack.

Microscopic examination of the wall showed fibrous tissue in which could be seen a small vessel with a thrombus in its lumen and which was surrounded by an area of infarction.

Three types of cysts are encountered in the pancreas:

1. *Cystadenoma:* Very often nodular and made up of several smaller cysts lined by a layer of epithelium which may become papillary as in similar cysts of the ovary.

2. *Retention Cysts:* These are smaller cysts the origin of which is uncertain. They may occur from pressure on the outside or from stones or in chronic interstitial pancreatitis. They also can be seen but much smaller in cases of cystic fibrosis as occurs in children.

3. *Pseudocysts:* The condition we have here. They may attain a considerable size and are not situated in the substance of the pancreas proper. They are caused by a previous attack of acute necrosis and by injury to the pancreas by trauma. As a result of superficial lesion, there is inflammatory exudate in the lesser sac, the foramen of Winslow becomes sealed and a cyst develops. Their contents vary considerably in appearance. They may be serous, yellow, brown or black depending on the amount of blood they contain. Surgery is usually successful.

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## STATE HOSPITAL AID IN MAINE HOSPITALS

Frank C. Curran*

The most serious problem now confronting the voluntary hospitals of Maine is that of financing care for the indigent. Not a new problem to most institutions, this has been a matter of concern to hospital authorities for many years. However, it is most acute at the present time due to reduced hospital endowment earnings and constantly rising costs, plus an increasing demand for service. These factors alone produce an economic condition among the general hospitals which must be relieved.

A study of the State Hospital Aid Program for the year ending June 30, 1950, has revealed some very startling facts. The figures presented here have been taken from the official reports of the State Bureau of Health, Department of Health and Welfare. All cost figures were derived from standard and uniform reports of expenditures submitted by Maine Hospitals to the Department of Health and Welfare. All such reports must be certified by qualified accountants. This means that the costs are as comparable and consistent as possible, and should disprove all statements that hospitals do not know their costs because of lack of uniform and standard cost-accounting systems.

The basic State Aid Program, as you know, is a legislative plan whereby citizens of the State of Maine who are placed in financial distress because of hospital expense, *but who are otherwise self-supporting,* may apply for State Aid to *assist* them in meeting their expenses of hospitalization. The State Aid fund, so-called, is a flat appropriation currently amounting to $587,000 annually. This amount is divided into four equal shares, each share representing the amount available for one quarter of the fiscal year, and the per diem rate available to the participating hospitals results from an application of the total State Aid Days approved by the State to the amount set aside for expenditure during the quarter involved. For example, with $146,750.00 allocated for State Aid per quarter, an experience of 30,000 State Aid Days for that period would result in a per diem yield of $4.889 for the participating hospitals. The average return per diem for the fiscal year ending June 30, 1950, was $4.67.

The Maine Hospitals for the year July 1, 1949 to June 30, 1950, provided 124,912 days of hospital care through the State Aid Program. The average cost for this service was $12.69 per day, or a total cost of $1,585,113.28 for the year. The total amount paid by the State was $583,953.62, resulting in an amount of $1,008,039.84 to be recovered from the patient or other sources. Careful investigation revealed that only $115,793.42 was received from the patient or his relatives, and that the Maine Hospitals were responsible for providing $882,246.42 of free services to State Aid Patients.

Of further interest is the fact that 22.6% of the 124,912 State Aid Days was furnished to patients receiving Public Assistance under the Old Age Assistance, Aid to Dependent Children and Aid to Blind Programs. Such cases cannot be supplemented from

* Director of the Eastern Maine General Hospital, Bangor, Maine.

other public funds, so hospitals must look to the patients (who receive $50.00 per month maximum under Old Age Assistance) for the difference. In other words, the Maine Hospitals have jeopardized their financial positions by contributing approximately $200,000 annually to authorized Public Welfare Programs at the State level. This, together with the free service provided the 77.4% remaining in State Aid plus the contributions made to Ward Service Patients not receiving State Aid, adds up to a staggering total.

It has been estimated that the total hospital service rendered by Maine Hospitals and not paid for by the patient or by public funds, but rather by private subscriptions, endowment earnings and capital funds, amounted to $1,500,000 during the past year. To carry 75% of the financial load for hospitalizing the medically indigent is indeed too great a financial burden. With this in mind, the Executive Committee of the Maine Hospital Association, in conjunction with the Association's Legislative Committee, approached Governor Frederick Payne and his Budget Committee in October of this year. All the information contained in this article was presented to substantiate a request for a $500,000 increase in the Annual State Aid Appropriation.

Unless more financial responsibility for Public Assistance Cases requiring hospital service is assumed by the State Agencies, our hospitals will be obliged to turn to the local Public Welfare Agencies to act as sponsors. By continuing to accept Public Assistance Cases on the State Aid Program, we are reducing our free service to patients who are self-supporting but unable to meet sudden and unexpected hospital expense. Two of the larger hospitals now require that adequate financial arrangements be made before admission on all cases except acute emergencies. Such a policy was made necessary in order to curtail the excessive amount of free hospital service being furnished without reimbursement from any source.

To continue under the present practice would result in more service to the Public Assistance Group, and therefore less help to the "border line" patient who can pay part of his expense. This latter group, if not helped in part, is then forced to appeal for Public Assistance.

No doubt the foregoing is very dry and uninteresting to one not experienced in the involved and complicated practices of hospital finance and economics. However, the attached schedule of statistics will show readily the results of State Aid for 1949-50.

STATE AID STATISTICS
(July 1, 1949, to June 30, 1950)

| Hospital | State Aid Days | % of Total State Aid | Cost Per Day | Total Cost | State Aid Received 1949-1950 | Loss Before Patient Payment | Net Loss Per Patient Day |
|---|---|---|---|---|---|---|---|
| Maine General | 20,786 | 16.6 | $15.44 | $ 320,935.84 | $ 95,576.93 | $ 225,358.91 | $10.84 |
| Cen. Me. Gen. | 18,684 | 14.9 | 11.89 | 222,152.76 | 86,646.67 | 135,506.09 | 7.25 |
| East. Me. Gen. | 14,259 | 11.4 | 12.37 | 176,383.83 | 65,354.69 | 111,029.14 | 7.79 |
| Children's | 7,382 | 5.9 | 15.44 | 113,978.08 | 34,319.98 | 79,658.10 | 10.79 |
| No. Me. Gen. | 6,765 | 5.4 | 8.13 | 54,999.45 | 31,508.45 | 23,491.00 | 3.47 |
| St. Mary's | 6,446 | 5.1 | 11.10 | 71,550.60 | 29,834.94 | 41,715.66 | 6.47 |
| Scott-Webb | 6,408 | 5.1 | 11.20 | 71,769.60 | 29,611.27 | 42,158.33 | 6.58 |
| Sisters' | 3,503 | 2.8 | 12.37 | 43,332.11 | 16,248.52 | 27,083.59 | 7.73 |
| Calais | 3,337 | 2.6 | 10.04 | 33,503.48 | 15,476.59 | 18,026.89 | 5.40 |
| Augusta | 2,668 | 2.1 | 14.45 | 38,552.60 | 12,256.36 | 26,296.24 | 9.86 |
| Rumford | 2,639 | 2.1 | 12.78 | 33,726.42 | 12,221.65 | 21,504.77 | 8.15 |
| Knox County | 2,345 | 1.8 | 14.02 | 32,876.90 | 10,823.62 | 22,053.28 | 9.40 |
| Madigan | 2,034 | 1.6 | 8.72 | 17,736.48 | 9,453.39 | 8,283.09 | 4.07 |
| Mercy | 1,862 | 1.4 | 14.20 | 26,440.40 | 8,624.01 | 17,816.39 | 9.57 |
| Waldo County | 1,697 | 1.3 | 13.43 | 22,790.71 | 7,702.57 | 15,088.14 | 8.89 |
| Bath | 1,591 | 1.2 | 12.27 | 19,521.57 | 7,305.38 | 12,216.19 | 7.68 |
| Aroos. Gen. | 1,451 | 1.1 | 10.11 | 14,669.61 | 6,611.50 | 8,058.11 | 5.55 |
| Thayer | 1,439 | 1.1 | 13.75 | 19,786.25 | 6,710.24 | 13,076.01 | 9.07 |
| Eastport | 1,359 | 1.0 | 13.87 | 18,808.56 | 6,367.02 | 12,441.54 | 9.15 |
| Hen. Goodall | 1,251 | 1.0 | 11.91 | 14,899.41 | 5,817.35 | 9,082.06 | 7.26 |
| P. I. Gen. | 1,159 | .9 | 13.47 | 15,611.73 | 5,343.23 | 10,268.50 | 8.86 |
| Gardiner | 1,102 | .8 | 13.84 | 15,251.68 | 5,123.41 | 10,128.27 | 9.19 |
| Brunswick | 1,081 | .8 | 11.58 | 12,517.98 | 4,991.14 | 7,526.84 | 6.96 |
| TOTALS | 111,248 | 88.0 | $12.69 | $1,411,796.05 | $513,928.91 | $ 897,867.14 | $ 8.07 |
| 100% Equivalent | 124,912 | 100.0 | $12.69 | $1,585,113.28 | $583,953.62 | $1,008,039.84 | $ 8.07 |

NOTE: Of the total loss shown above, $115,793.42, or $0.927 per day average, has been all that the patients were able to pay. This leaves a *net loss* to Maine Hospitals of $892,246.42, or $7.14 per day, on State Aid Patients alone.

In closing, the entire problem can be summed up as follows:

1. Maine Hospitals are spending more than one and one-half millions of dollars for State Aid Patients.
2. Nearly $900,000 must be provided by the hospitals from private financing.
3. Maine Hospitals are no longer able to obtain funds from private sources to carry this burden.
4. Unless more public funds are made available for Public Assistance Patients, these citizens must go without all but emergency service.

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# SPINAL ANESTHESIA FOR VAGINAL DELIVERY*

Richard Wayburn, M. D., and Clement S. Dwyer, M. D.

"Modified saddle spinal anesthesia" for vaginal delivery has long been used with success in the larger centers but only recently has it gained widespread recognition. And even today, this safe and effective method of anesthesia is not often used in the smaller communities. The reason for its lack of popularity may be that the general practitioner overestimates the difficulties and hazards of the method. It will be shown that specialized equipment is not required and that, with observation of certain indications and contraindications, simple technics will give gratifying results in the average parturient female.

## Premedication

No special premedicants are needed. Demerol, barbiturates, atropine or scopolamine may be employed during labor according to the custom of the physician.

## Indications

The indications for spinal anesthesia for pelvic delivery are, in general, any parturient female suitable for a general anesthetic for delivery plus many who could not wisely be given any type of inhalation anesthesia. The latter group includes women with acute and chronic respiratory diseases, diabetes, toxemias, and cardiac and renal diseases.

## Contraindications

Certain contraindications apply to all types of spinal anesthesia. Spinal deformities, local infection in the area of puncture, shock, septicemia, extreme hypertension, coronary insufficiency, severe anemia, central nervous system disease, and prejudice of the patient preclude the use of the method. Other contraindications more specific to the obstetrical patient include hemorrhage as with placenta previa or abruptio placenta and possible need for intra-uterine manipulations.

* From the Department of Anesthesiology, Eastern Maine General Hospital, Bangor, Maine.

## Technic

We prefer terminal spinal anesthesia although much has been written concerning fractional spinal or repeated spinal anesthesias commencing as soon as the patient is in hard labor. For terminal anesthesia in primiparas, the injection should be made as soon as there is full cervical dilatation. In multiparas, it may be given as soon as the cervix is four or five centimeters dilated.

Meticulous care should be taken to observe careful technic in performing the tap since most anesthetic failures are due to unsuccessful lumbar punctures.

The patient is placed on the delivery table, the blood pressure taken and the cuff left on the arm for frequent subsequent readings. The patient is then turned into the lateral recumbent position with the knees drawn up and the neck flexed on the chest. A nurse supports the patient. The sacral, lumbar and lower thoracic regions, flank to flank, are painted with suitable antiseptics. A wheal is made at the third or fourth lumbar interspace with 1% procaine solution. The infiltration is carried down well into the interspinous ligament. 50 mg. of Ephedrine sulfate is injected through the wheal into the lateral spinal muscles. The drug for intrathecal use is prepared and lumbar puncture is performed with a 22 gauge spinal needle immediately after a contraction. After securing a free flow from the needle, the syringe containing the anesthetic solution is attached and about 0.1 cc. of cerebrospinal fluid is aspirated. The contents of the syringe is then injected at a rate of about 0.5 cc. per second. Injection must not be made just before or during a contraction.

The patient is made to sit up for thirty seconds and then is laid on her back with a large pillow placed under her head and her legs elevated in position for delivery. She will usually experience one more painful contraction following the administration. Labor is often slowed for a few minutes.

The blood pressure should be checked frequently and the patient observed for any untoward reaction.

The level of anesthesia should extend just above the umbilicus as tested by pinch or pin-prick.

### Anesthetic Drugs

1. Procaine Hydrochloride
   Procaine provides very satisfactory terminal spinal anesthesia in doses of 50 mg. in 1.5 cc. of cerebrospinal fluid. Anesthesia lasts about an hour.
2. Pontocaine Hydrochloride
   This is a longer-lasting agent which may be procured in a ready-mixed ampoule containing 4 mg. in 2 cc. of 6% dextrose solution. Anesthesia should last two to four hours. We prefer this drug in our practice.
3. Nupercaine Hydrochloride
   This very long-acting drug comes in an ampoule containing 2.5 mg in 2.0 cc. of 5% dextrose solution. Anesthesia persists for three to five hours.
4. Other Agents
   Metycaine, Intracaine, Monocaine, etc., may all be employed in small doses but have no apparent advantage over the above mentioned agents.

### Advantages of the Method

1. The patient is awake, comfortable and coöperative.
2. Fetal and maternal mortality are extremely low.
3. Most infants cry spontaneously.
4. The mother derives pleasure from hearing her child's first cry and seeing her baby.
5. There is ample anesthesia time for a leisurely perineal repair.
6. Minimal post-partum nursing care is needed since the patient is awake.
7. Pulmonary complications are rare.
8. Bleeding is minimal. The uterus is reactive to oxytocics.

### Disadvantages and Untoward Reactions

1. Nausea and Vomiting
   This is uncommon in low spinal anesthesia. It is readily controlled when necessary by deep breathing or oxygen inhalation.
2. Arterial Hypotension
   Hypotension is infrequent and usually requires no treatment. Moderate or severe falls in blood pressure respond well to intravenous vasopressor drugs such as desoxyephedrine (6-8 mgm.) or ephedrine (25 mgm.).
3. Retarded Labor
   An increased number of low forceps deliveries may be seen due to slowed uterine contractions.
4. High Spinal Anesthesia
   Uncontrolled spread of the anesthetic agent with resulting respiratory embarrassment and severe hypotension is extremely rare with proper technic. Respiratory difficulty is treated with oxygen and, if required, artificial respiration. Vasomotor failure will respond to the treatment as noted above.
5. Post-spinal Headache
   Post-spinal headache occurs more frequently after vaginal delivery than after abdominal surgery. However, the incidence of headache may be greatly reduced by employing a 27 gauge spinal needle as recommended by Cann and Wycoff. The headache may be treated with any of the accepted medications such as caffeine with sodium benzoate, codeine and aspirin, intravenous nicotinamide or sodium nicotinate.

### Summary

"Modified saddle spinal anesthesia" in vaginal deliveries has been discussed. We believe that this method of anesthesia has value and should have a more widespread trial.

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During the last twenty years a great and increasing interest has been taken in the incidence of tuberculosis in nurses and the methods to be used in an endeavour to reduce this. It is now clearly recognized that nurses, even in general hospitals where tuberculosis is rigidly excluded, run a far greater risk of developing this disease than do comparable members of the general population.—Geoffrey Bewley, M. D., Dubl., F. R. C. P. I., F. R. C. S. I., D. P. H., *The Lancet,* March 25, 1950.

# A GENERAL SURVEY OF DYSMENORRHEA*

Donald Coulton, M. D., Bangor, Maine**

Dysmenorrhea, meaning painful or difficult menstruation, unlike most pelvic conditions is not a disease but a symptom. Since most women experience some degree of pelvic discomfort during menstruation, the term "dysmenorrhea" should only be applied to those in whom the pain is sufficiently severe to interrupt the patient's daily routine. This may vary in severity from those patients who only require mild analgesics to those confined to bed without relief until the end of menstruation.

The syndrome of dysmenorrhea is sharply divided into two types. It is considered primary, essential or idiopathic when there is no gross pelvic pathology to account for it; and correspondingly termed secondary or acquired when it is the result of some pelvic lesion. Both primary and secondary dysmenorrhea are further subdivided into uterine and ovarian types.

The etiology of secondary uterine dysmenorrhea is usually quite obvious, the most frequent causes being chronic pelvic inflammatory disease, intramural fibroids, endometriosis and cervical obstruction. These may be disposed of briefly in this discussion. The pain from both chronic pelvic infection and fibroids is due to pelvic congestion and in the latter is also the result of increased uterine contractions from the presumed irritation of the mass in the uterine wall. The monthly bleeding in endometriosis from abnormal sites of endometrial tissue in the recto-vaginal septum or myometrium produces distension, irritation and pain. Cervical obstruction, in the form of adhesions or stenosis, interferes with free flow, causing painful, expulsive contractions. Uncomplicated or non-adherent retroversion of the uterus rarely is a cause of dysmenorrhea. When it is suspected as a cause, the retroversion should be corrected by means of a vaginal support for a test period, in order to unquestionably establish its relationship before resorting to operative correction. Even so, results from suspension alone are not encouraging.

Secondary ovarian dysmenorrhea likewise is caused by chronic ovarian infection, endometriosis and cyst formation, resulting in adherent, enlarged and often prolapsed ovaries.

Treatment of secondary dysmenorrhea of either the uterine or ovarian type, is by direct attack on the underlying pathology.

Primary dysmenorrhea by its very definition becomes the handy waste basket for collecting all cases of dysmenorrhea for which we find no ready explanation. Such a catch-all diagnosis offers all the same traps that a casual diagnosis of "neurosis" does for the medical man, since the significance and methods of treatment are basically different for this group. Therefore every effort should be made to rule out primary pathology before accepting a diagnosis of primary dysmenorrhea. Uterotubograms are most helpful in this respect, often revealing unsuspected, intrauterine and intramural fibroids and less apparent forms of chronic salpingitis. Nevertheless, occasional cases will only be accurately diagnosed as of secondary origin, at the time of laparotomy in the course of treatment of a presumed primary case.

The incidence of primary dysmenorrhea varies greatly in different series reported, probably due to the differences in evaluating the amount of pain required to justify use of the term "dysmenorrhea." Among gynecological patients, the avearge incidence seems to be about 10%, equally divided between uterine and ovarian types. The average age of onset is equally difficult to determine since pains usually begin gradually and become progressively worse, the time at which it becomes genuine dysmenorrhea being open to individual interpretation. However, the onset is usually during adolescence.

In typical uterine dysmenorrhea, the pains begin with the start of each flow and are described as spasmodic cramps, giving rise to the term "uterine colic," though in some it may be a steady ache. Since uterine pain is of a referred type, it is usually localized in the midline about half way between the pubis and umbilicus.

Ovarian dysmenorrhea is readily distinguished clinically from the uterine type. The pain appears in one or both lower quadrants rather than the midline, usually beginning two or three days before menstruation rather than with it, and radiating down the thighs in many cases. Nausea is a common accompaniment. Typical pains can be reproduced by bimanual pressure on the ovary and is distinctly different from the pain produced by the passage of a uterine sound, which reproduces typical uterine pain.

It is generally accepted that the origin of uterine dysmenorrhea is in the markedly exaggerated myometrical contractions instigated by an abnormal sensitivity of the nerve endings in the uterine isthmus. This was graphically demonstrated by Moir[1] with the use of an intrauterine balloon. The time of severest pain coincided with the peak of uterine contraction and was associated with disappearance of pulsations in the uterine arteries, suggesting that the pain may be due to relative ischemia of the myometrium simi-

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lar to that of angina or intermittent claudication. The only other significant finding was demonstrated by Davis.[2] A subacute or chronic neuritis of the uterine nerves is present in 70% of cases, possibly accounting for the abnormal sensitivity of these nerve endings in the isthmus which act as a trigger mechanism. A similar change is also found in the ovarian nerves in about the same percentage of ovarian cases. Beyond this we have only a multitude of theories concerning possible or probable underlying constitutional defects, all of which are true of some cases but which fail entirely to explain the majority. Undoubtedly there are numerous predisposing factors any one of which may be responsible in the individual case.

An estrogen-progestin imbalance may predispose to uterine dysmenorrhea since estrogen and progestin are antagonistic in their action on the myometrium. An excess of estrogen or a deficiency of progestin theoretically could produce dysmenorrhea by increasing uterine contractions and many such patients do have multiple follicle cystosis. However anovulatory cycles usually are not painful and many patients with multiple follicle cysts do not also have dysmenorrhea.

Hypoplasia of the uterus is also a common finding associated with uterine dysmenorrhea and it has been suggested that the over-abundance of fibrous tissue in such uteri causes splinting of the muscle fibers resulting in irregular, spasmodic and therefore painful contractions. Moreover hypoplastic uteri are often acutely anteflexed, another stigma of retarded genital development, which might add to the difficulty of free flow. However, many women with such uteri do not have pain.

Ovarian dysmenorrhea on the other hand, seems often to be associated with sclerocystic disease or cirrhotic ovaries, characterized by a thick fibrous capsule and abnormal numbers of enlarged follicles. It is probable that this results in pressure on the degenerated, sensitized ovarian nerves, producing pain.

Psychic trauma or an anxiety neurosis related to menstruation occasionally is of significance, but more usually is the result of dysmenorrhea rather than the cause. The main problem here lies in segregating those cases which are purely psychogenic for psychiatric care.

Since no single cause of primary uterine dysmenorrhea has been established and predisposing factors are usually obscure and difficult to identify, it is small wonder that countless remedies are in current use, no one of which is satisfactory in even a reasonable number of cases. Medical management of these cases may be considered as either palliative or as attempts to overcome the responsible constitutional defect. Palliative drugs should be reserved for the mild cases since they are inefficient at best and their beneficial action wholly temporary. The usual analgesics are of little value. Antispasmodics are of some use as theoretically they should be, presuming the pain is the result of exaggerated uterine contractions. Typical of these are atropine, pavatrine and benzedrine. They are helpful in a small percentage of cases in relieving the individual attack only.

It should be pointed out that cure of dysmenorrhea implies permanent relief without further need of therapy. Overcoming the constitutional defect by medical means is the ideal solution. This has been attempted by several methods suggested by the known facts as well as the presumed predisposing factors.

Thiamin hydrochloride might logically be expected to cure many cases because of its reparative effect in neuritis.[2] It has not done so. Except in cases of actual vitamin B deficiency, results have been disappointing even when unusually large doses were given.

Since this is the endocrine age, nearly all the hormone preparations have been tried, most without rationale and generally without benefit. The use of estrogen and progestin alone are worthy of consideration. Small doses of stilbesterol (0.3 mg. per day) are of help when dysmenorrhea is associated with uterine hypoplasia, as it produces myometrial growth and improved vascularization.[3] The effect is usually temporary as both the degree of hypoplasia and symptoms return when treatment is terminated. Large doses of estrogen (1.0 mg. per day for 20 days of each month) will relieve dysmenorrhea but the resultant bleeding is not physiologic menstruation.[4] The pituitary-ovarian activity is suppressed and only withdrawal bleeding occurs from non-ovulatory endometrium, controlled entirely by the stilbesterol administered. Relief of dysmenorrhea lasts only during therapy while physiologic menstruation is suppressed and toxic symptoms are common.

Probably the most rational and effective endocrine therapy is the use of progestin.[5] Physiologically it has the ability to inhibit uterine contractions and theoretically would have a beneficial effect in correcting a hormone imbalance produced by an excess of estrogen. 5-15 mg. are given orally per day in the secretory phase of the cycle. About 50% of patients will obtain relief from this regimen, but again it is temporary in most cases, the original symptoms returning when therapy is stopped.

Since the use of testosterone was once widely recommended, it should be included in this group. It will produce temporary relief in some patients and occasionally a true cure will be obtained. However the incidence of masculinizing effects, especially common in young women, make its use inadvisable, particularly since equally good results are obtained with estrogen or progestin without the attendant risk of masculinization.

In summing up medical management, we find a definite use for palliative antispasmodics in mild cases and some benefit from small doses of estrogen and

progestin therapy. Permanent cure by medical and hormonal regimes, directed towards correcting underlying constitutional defects, rarely is possible. The relief is usually temporary and therefore such treatment must also be classed as palliative.

Since our ideal cure by controlling basic factors is not yet generally possible, the only other alternative is the destruction of the hypersensitive nerves responsible for the pain. The potential effectiveness of destroying the nerve endings at the internal os in eliminating uterine pain, is evident in the extremely low incidence of primary dysmenorrhea existing after delivery, the cervical dilatation of which causes tearing and atrophy of these nerves. The oldest and simplest method for doing this is by cervical dilatation, and as one might expect, the occasional multipara with primary dysmenorrhea receives no benefit from this procedure. The original basis for this operation was established on the belief that the dysmenorrhea was secondary to cervical obstruction or stenosis at the internal os. However, cervical dilatation for primary dysmenorrhea should be a quite different procedure than that done as a preliminary to curettage. Prolonged dilatation is required to produce a pressure atrophy of the nerve endings centered about the internal os and for this purpose either a specially designed pronged dilator (Hirst metranoikter) is used or a stem pessary is inserted for a matter of weeks. The use of stem pessaries probably should be abandoned due to the high incidence of cervicitis associated with their use. That prolonged dilatation is essential, may be verified in the literature from the results of "dilatation and curettage" — or in other words brief dilatation — which has a very low and temporary incidence of relief, while prolonged dilatation may cure as high as 30% of cases. Frequently repeated dilatation or "passage of sounds," on the basis of promoting freer uterine flow or reflexly stimulating pituitary-ovarian activity is both ineffective and dangerous. It is ineffective as too little pressure is exerted to cause cervical nerve atrophy, and dangerous because the uterus can not be frequently invaded with safety.

The second method of uterine nerve destruction is by the injection of 80% alcohol into the pelvic plexuses which lie posterior and lateral to the uterine isthmus in the base of the utero-sacral ligaments.[6] Blos developed this method in 1929 and reports since that time consistently indicate about a 60% incidence of cure from its use. It has not been widely adopted since accurate, blind injections must be made and few have acquired sufficient skill in the method to be reliable.

In 1925, Cotte devised the operation of presacral neurectomy which is the most satisfactory and widely used surgical cure of uterine dysmenorrhea today. He reported a cure rate of 75% in his first series and most recent reports are better than 80%.[7, 8, 9] The so-called presacral nerve is in reality a plexus of nerves derived from the sympathetic thoraco-dorsal ganglia, which descend beneath the posterior peritoneum to the pelvic plexuses at which point they converge with the motor fibers of the parasympathetic system from the sacral ganglia. The most accessible area of attack may be roughly bounded by the bifurcation of the aorta above, to the mid-sacral segment below; the ureter on the right and the iliac vein on the left. After identifying the lateral landmarks, the small amount of loose connective tissue and nerves are mobilized down to the periosteum and a segment removed. It should be pointed out that the sensory distribution of the presacral nerve is limited and no relief of distal adnexal pain can be expected from its interruption. Satisfactory resection should be verified by microscopic identification of nerve tissue. It is also indicated clinically by vaginal staining a few days after operation and the ability to pass a uterine sound to the fundus without undue pain four to six weeks postoperatively. Failures are chiefly due to inadequate resection or anomalies of the nerve bed which result in incomplete resection. It might be added that about half of patients with satisfactory resections have relatively painless labors.

Ovarian denervation dysmenorrhea is attended by the same incidence of success as uterine. The sensory innervation of the ovary is also sympathetic, being received through the infundibulo-pelvic ligament from the renal, intermesenteric, and celiac plexuses. The innervation is peculiar in that it is bilateral for each ovary, explaining why a source of pain in one ovary may be felt on both sides, or even on the opposite side entirely.

Modelled after Cott's presacral neurectomy, Dupont performed the first ovarian denervations in 1929. Both infundibulo-pelvic ligaments are simply ligated and severed and the ligated stumps are then carefully resutured together to prevent subsequent prolapse.

It should be mentioned that many cases of primary dysmenorrhea are the result of both uterine and ovarian pain and therefore both operative denervations should be done. No adverse effects are found on menstrual function, orgasm, fertility or labor after either or both neurectomies. Operative mortality is nil. Either or both procedures probably should also be done after other pelvic surgery when some degree of uterine or ovarian pain may be anticipated. This is especially true when conservative operations for endometriosis are done in the hope of preserving the childbearing function.

In conclusion then, when we are faced with the problem of dysmenorrhea, every effort including a

uterotubogram, should be made to correctly classify it as primary or secondary. In the secondary group the pathologic lesion is attacked directly, possibly supported by pelvic sympathectomy if future pain is anticipated. Cases of primary dysmenorrhea should be further diagnosed as of uterine, ovarian or mixed types. Mild cases may be carried satisfactorily on palliative medical therapy. Severe cases and those not responding to palliaitve methods should be submitted to pelvic sympathectomy as indicated in the individual case.


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# THE WANDERING TROPHOBLAST*

Lloyd E. Morris, Jr., M. D.**

Fairly frequently, when examining uterine curettings, one encounters trophoblasts invading the myometrium and even blood vessels. These trophoblasts may be large cells with large nuclei and prominent nucleoli. Such characteristics of behavior and appearance usually indicate malignancy when associated with an epithelial or connective tissue tumor and yet a true malignancy of trophoblastic origin is exceedingly rare. The problem, then, is to evaluate the behavior and histology of trophoblastic tissue with relation to the usual criteria of malignancy.

Generally speaking, the trophoblast is the parenchyma of the placenta.[1] Through such cells pass nutritive substances from the maternal blood essential for the maintenance of embryonal growth. Waste products of embryonal metabolism pass in the opposite direction. In performing these functions, the trophoblast evinces selective absorption to a high degree. In addition, the trophoblastic tissue elaborates a number of hormones, the most important of which is the anterior pituitary-like hormone or chorionic gonadotropin.

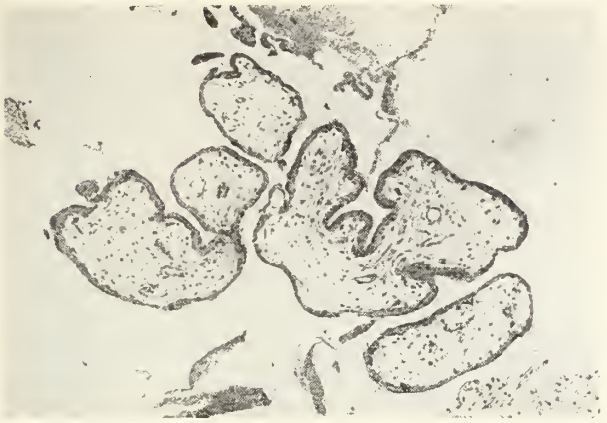
The trophoblastic cells become distinct from the embryo-forming cells very early, that is, during the passage of the fertilized ovum through the tube into the uterus or during the first week.[1] About ten days after fertilization the syncytiotrophoblasts may be distinguished from the cytotrophoblasts. The syncytiotrophoblasts have indistinct cell boundaries and put out pseudopodia in the form of long, lacy streamers containing many vacuoles. These vacuoles represent fluid absorbed from the maternal decidua. They coalesce to form large intracellular spaces. The spaces are in turn converted into the trophoblastic capillaries and are quickly filled with blood to produce the decidual sinusoids.[2] The syncytiotrophoblast in its early stages is also phagocytic, taking in maternal decidua and blood cells.

During this period of syncytiotrophoblastic activity, the cytotrophoblasts are quiescent. At about the end of the second week after fertilization, the cytotrophoblasts actively grow out into the framework previously laid down by the syncytiotrophoblasts. While they do so, during the third week of development, mesoderm pushes into the primitive villi, followed soon by blood vessels. This stroma follows the branching of the villi. As a result, the villus, instead of consisting entirely of trophoblastic cells, now shows a vascular connective tissue core covered by an inner layer of cytotrophoblasts and an outer layer of syncytiotrophoblasts. The vessels of the villi are in communication with the embryonic circulation by way of the allantoic arteries and veins. As soon as the embryonic heart begins to beat, the definitive mechanism for nutrition of the embryo is ready to function. As the fetal circulation begins, the syncytiotrophoblasts lose their vacuoles and become an inconspicuous thin layer on the surface of the villus. The cytotrophoblasts, however, continue to proliferate and bring about further growth of the placenta. This proliferation reaches its height during the second month of pregnancy. (Fig. 1) Thereafter, the number of cytotrophoblasts steadily decreases, until at term only an occasional such cell is found. The blood vessels increase in size. The connective tissue core becomes more dense and finally resembles ordinary fibrous tissue.[3] (Fig. 2)

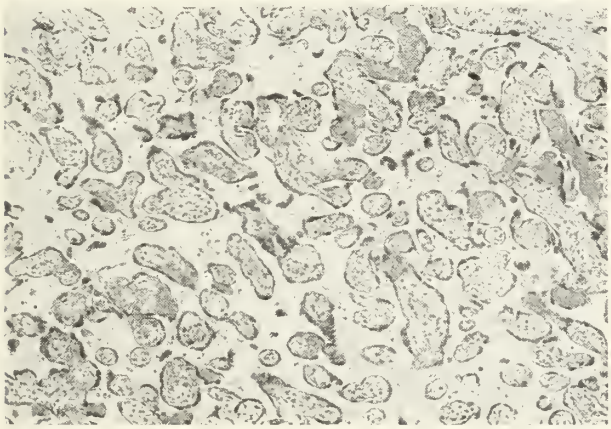
Spontaneous abortion usually occurs during the second or third month of pregnancy.[4] In about 50% of spontaneous abortions the embryo is not abnormally developed, though it may be macerated. In association with the aborted normal embryo, the chorionic epithelium is luxuriant and characteristically double layered. The stroma is loose and of immature fibroblastic type, and contains thin-walled capillaries, enclosing nucleated and non-nucleated red blood cells.

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** From the Laboratory Service of the Eastern Maine General Hospital, Bangor, Maine.



(Fig. 1) Normal chorionic villi. Age 30. Therapeutic abortion at 2 months. The cytotrophoblasts are inconspicuous in this field, but are seen as large, clear cells beneath the syncytiotrophoblasts, with no evidence of degeneration. Nucleated red blood cells are seen in the capillaries.

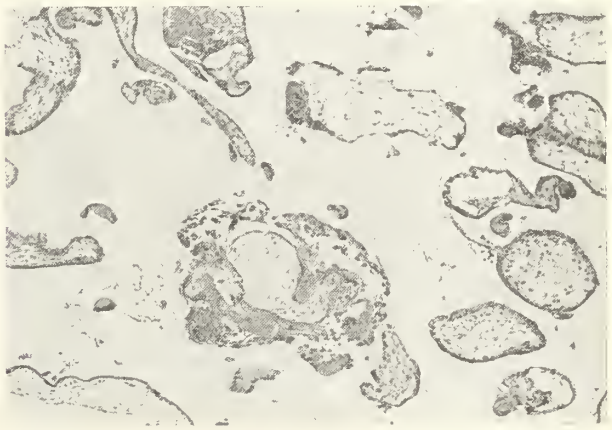


(Fig. 2) Normal chorionic villi. Age 18. Spontaneous abortion at 7 months. Cytotrophoblasts are rare, while numerous dark-staining syncytiotrophoblasts are seen. The stroma is fibrous and fairly vascular. Nucleated red blood cells are seen in the capillaries.

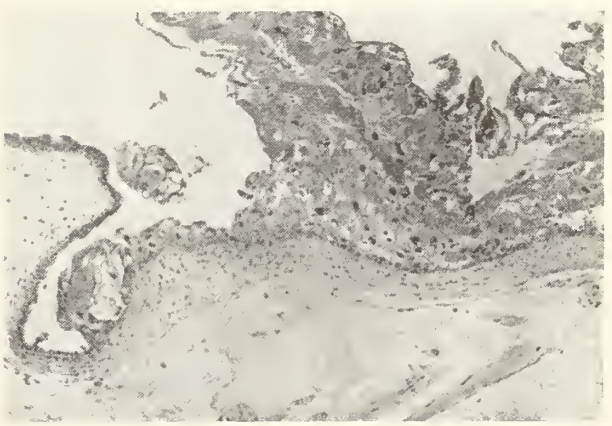
In the remaining 50%, the embryo is often definitely pathological, exhibiting defects incompatible with further existence. This type of embryo usually dies at about the third week ovulation age or the fifth week menstrual age. At this time, the trophoblastic tissue is undergoing rapid proliferation, but the blood vessels of the villi are not yet well developed. There is usually a latent period of about five weeks before the maternal organism aborts the "bad egg." During this period, the trophoblasts continue to proliferate independently. The substances produced by them or absorbed by them from the maternal fluids accumulate in the stroma of the villi. Since the fetal circulation never comes into being, these products continue to accumulate and thus bring about marked edema of the stroma. The end result of these processes is an edematous avascular chorionic villus with moderate but benign hyperplasia of the trophoblasts. This combination of features is distinctive and has been termed "blighted ovum." (Fig. 3) After the passage of such an ovum, the patient usually recovers completely.

Case I: A 36-year-old woman was admitted to the hospital because of vaginal bleeding. She was 2½ months pregnant. She had had a normal delivery 7 years previously and no abortions. After the diagnosis of incomplete abortion had been made, a curettage was done. The histological picture was that of "blighted ovum." The patient recovered uneventfully. She has subsequently had two normal deliveries.

One can see that from blighted ovum to hydatid mole is an easy transition. "A typical mole is derived from a true pathologic ovum in which the embryo was either absent or very defective from the beginning, and which, for reasons unknown, failed to abort at the usual time. Hence it constitutes a type of 'missed abortion'."[4] A mole shows accentuation of the characteristics of the blighted ovum. The villi are



(Fig. 3) Blighted ovum. Age 33. There is moderate hyperplasia of syncytiotrophoblasts and cytotrophoblasts. The stroma is edematous and avascular. In some areas it is degenerating, with the formation of small cysts.



(Fig. 4) Hydatid mole. Age 48. Five months' pregnancy. There is marked proliferation of cytotrophoblasts and syncytiotrophoblasts. The stroma is edematous and avascular. Marked degeneration of the stroma leads to the formation of large cysts.

avascular and markedly edematous. The stroma often breaks down entirely, resulting in the formation of cysts. The trophoblasts show a varying degree of hyperplasia. (Fig. 4) The specimen usually appears grossly as a disorganized mass of grape-like bodies strung together.

Hydatid mole is an uncommon condition, occurring about once in every 2,000 deliveries.[5] It most often occurs in women between 20 and 30 years of age. Of women pregnant after the age of 40, about 25% have moles. The number of previous pregnancies is probably not an important factor.

The mole is usually passed or causes symptoms at about the end of the fourth month of pregnancy.

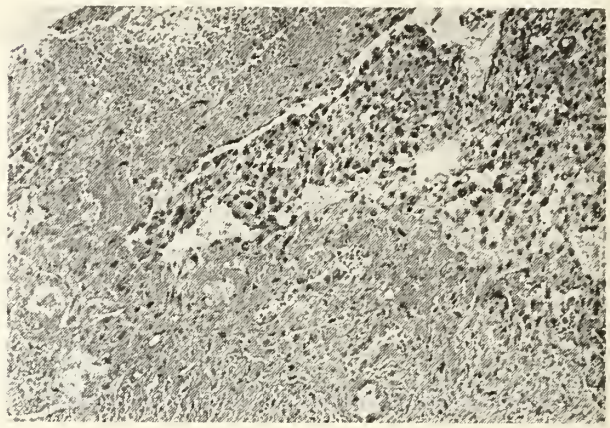
A patient with a mole not infrequently complains of nausea and vomiting, and may show signs of toxemia. In Sherman's[5] series of 78 moles, 30% of the patients were toxemic, some severely so. Absence of fetal life after 5 months gestation should make one suspicious of a mole.

The first sign that a mole is present may be a gush of bright red vaginal bleeding, followed by intermittent watery bleeding which may last from days to months. Passage of vesicles occurs in only 20% of cases. The uterus is often larger than the period of amenorrhea would lead one to expect. If the pregnancy lasts as long as five months, fetal parts and heart sounds are absent. In this type of case, X-rays often reveal absence of fetal bones. Pregnancy tests are usually positive. In normal pregnancy, there are 5,000-30,000 m.u./L. of urine. In the presence of mole, there are at least 200,000 m.u./L. The spinal fluid may also give a positive reaction.[6]

One important accompanying condition, which is probably present in all cases to a varying degree, is the formation of ovarian lutein cysts. These may be unilateral or bilateral. They may reach such a size that they are detectable clinically. In the past, some have believed that such cysts cause the mole to form. It is probable, however, that hormones produced by the trophoblasts stimulate the pituitary, which then causes hyperplasia of the lutein cells with cyst formation. The chorionic gonadotropin has no direct effect on the ovary. The removal of the mole will allow gradual regression of these cysts. This fact has practical application because occasionally an operation is performed, possibly in the face of toxemia, to remove these cysts. Such an operation may well prove fatal.

The mortality of untreated mole is 10-15%. Death is usually due to hemorrhage or sepsis. The treatment most often recommended is a conservative emptying of the uterus from below. The cervix is packed until dilated. Then the uterine cavity is cleaned out digitally or with a dull curette. The mortality of this procedure is about 2.5%. Some resort to abdominal hysterotomy with thorough exploration of the uterine cavity.

After a mole has been passed or removed, the patient must be followed for a long time. This is true because even a thorough curettage cannot remove the trophoblasts that have deeply invaded the myometrium. (Fig. 5) In most cases, these trophoblasts regress,



(Fig. 5) Hydatid mole. Age 50. Hysterectomy because of vaginal bleeding. Trophoblasts are invading the myometrium and blood vessels.

and the patient remains well. In about 10% of women who have had moles, a malignant chorionic tumor develops.[7] The histologic picture of the mole is of little aid in predicting the future course of the patient. Most epithelial and connective tissue tumors have a fairly uniform appearance and the criteria of malignancy are for the most part clear cut. Invasiveness and metastasis point toward a poor prognosis. The trophoblastic tissue of a mole, however, shows much variation in growth activity as various portions of the moles are examined.[8] Moreover, huge pleomorphic hyperchromatic nuclei are common even in normal trophoblastic tissue. The normal trophoblast invades the myometrium extensively. In apparently normal pregnancy, clumps of trophoblasts have been demonstrated in the maternal lung capillaries. This physiologic form of metastasis is known as deportation. Hertig[9] has attempted a pathologico-clinical correlation in 200 moles. A probably benign mole shows (1) slight hyperplasia of trophoblasts without anaplasia or mitoses. A few anaplastic cells with large irregular hyperchromatic nuclei may be found. A probably malignant mole shows (1) Invasion of the villous stroma by relatively undifferentiated trophoblasts. (2) Moderate to marked anaplasia, with or without mitotic activity of the trophoblasts. (3) Tissue-culture-like growth of detached trophoblasts, usually in fairly large masses and growing upon the surface of blood clot. Although his studies indicate that moles can be roughly subdivided into probably benign and probably malignant, he states that the course of any one patient is almost unpredictable.

On the other hand, it is important not to take a fatalistic point of view toward the possible development of malignancy in a patient who has had a mole. A full-blown case of chorionepithelioma, which usually has metastasized to the lungs and brain before it gives local signs of its presence, is sure to terminate fatally. There is, however, a group of malignant chorionic tumors which may remain locally invasive without metastases for a long time, the maternal defensive mechanism being apparently strong. These may be called chorionepithelioma in situ.[9] If an early hysterectomy is performed in these cases, the patient recovers. Therefore, it is essential to follow a patient who has had a mole by means of repeated quantitative Friedman tests. During the first three months after evacuation of a mole, the Friedman test remains positive even in the absence of chorionepithelioma, although the titer slowly decreases. This period includes the time interval, about 30 days after the passage of the mole, during which a treatable chorionic malignancy is most likely to give evidence of its existence.[9] The most important signs of such a process at this time are subinvolution of the uterus and further vaginal bleeding.

Case II: A woman, aged 18, was admitted to the hospital because of vaginal bleeding. She had noted amenorrhea of 3 months' duration, but the uterus was the size usually found in a 5 months' pregnancy. A curettage was done. Examination of the tissue grossly revealed many small cysts arranged in clusters. The microscopic diagnosis of probably benign hydatid mole was made. One month later, profuse vaginal bleeding was again noted. A hysterectomy was done. The endometrium grossly showed no pathological change. Microscopically masses of cells with abundant cytoplasm and very large hyperchromatic nuclei were seen invading the myometrium. Some of these cells were adjacent to blood vessels. No mitoses were seen. A lutein cyst measuring 2.5 cms. in diameter was found. A diagnosis of invasive mole of the uterus and lutein cyst of the ovary was made.

If subinvolution and vaginal bleeding persist, a repeat curettage is indicated. If active trophoblastic tissue is found, a hysterectomy should be done. After this initial 3 months period, the pregnancy test should be repeated monthly for a year. A gradual decrease in titer indicates the absence of malignancy. An increase in titer indicates either an intervening pregnancy or development of chorionepithelioma. Pregnancy may be diagnosed if there is a rapid decrease in titer.[10] If the titer rises steadily, chorionic malignancy is probably present and hysterectomy is indicated. The gonadotropin content of urine may go as high as 1,000,000 m.u./L. of urine.[6]

Chorionepithelioma is an exceedingly rare tumor, occurring about once in every 13,000 deliveries.[11] Many large clinics have never encountered this tumor. Only about 50% of chorionepitheliomas follow moles; 25% follow abortions, and the remaining 25% follow normal pregnancies. The tumor usually develops within a few weeks after the preceding condition appears. If chorionepithelioma appears to follow a mole after an interval of several years, it is probably the result of an intervening unrecognized abortion.[9] The most important sign that malignancy may be present is persistent bleeding after delivery or abortion.[10] Once chorionepithelioma has been diagnosed, it kills in an average time of four months.[7] The tumor histologically consists of masses of trophoblasts pushing into the myometrium and causing it to melt away. Hemorrhage is prominent. The villous stroma may be entirely absent.* Retrograde extension may occur into the vulva or vagina. Perforation of the uterus may occur, with fatal hemorrhage. The tumor metastasizes by way of the blood stream, and death is usually due to pulmonary metastases. Other distant organs which may be involved are the brain, liver, and kidneys. Occasionally, at autopsy, no primary tumor is demonstrable, and at the same time death is obviously caused by extensive metastases. Such ectopic tumors may be due to malignant changes in a minute portion of a mole or otherwise normal placenta. These cells might enter the blood stream before the mole or placenta leaves the uterus, thus setting up an ectopic focus, as in the brain.[10]

We have reviewed the curettings from 400 patients, submitted during a 2-year period, in which products of conception could be identified. Of these, 28 were blighted ova. Most of the patients were in the late twenties or early thirties. The duration of pregnancy was two to three months. Seven hydatid moles were diagnosed. The patient's age ranged from 16 to 42 years, two being of the latter age. The average duration of pregnancy was 4 months. All were probably benign, according to Hertig's criteria.[9] No history of subsequent pregnancy could be obtained. No case of chorionepithelioma was encountered.

## Summary

The abnormalities of development of the chorionic villi have been discussed. The author has attempted to demonstrate a continuity in the pathogenesis of blighted ovum, hydatid mole, and chorionepithelioma. A blighted ovum is usually passed completely, without sequelae. Since invasiveness, metastasis, and marked activation of nuclei are properties even of normal trophoblasts, the usual histologic criteria of malignancy are of dubious value as an aid in predicting the course of a patient who has passed a mole. About 10% of moles eventuate in chorionepithelioma. By the time marked anaplasia of the trophoblastic cells is noted in curettings, the tumor is well established and

* Such a combination of trophoblasts and hemorrhage is called a trophoblastic node.

death results in a few months. Under these circumstances, much reliance must be placed upon repeated quantitative tests for chorionic gonadotropin. A steadily rising titer indicates abnormal trophoblastic proliferation, and a hysterectomy is indicated. By adopting an attitude of "scientific apprehensive expectancy"[9] toward moles, one may save many uteri that are now needlessly removed without adding to the death rate from chorionic malignancy.

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## METHEMOGLOBINEMIA FROM NITRATES IN WELL WATER*

Albert W. Fellows, M. D.

During the past five years there have been an increasing number of reports of cyanosis in infants caused by an excess of nitrates in polluted well water and characterized by the presence in the infant's blood of methemoglobin. Susceptibility to the development of methomoglobinemia decreases rapidly after two months of age and is rare after six months. Adults can consume such water without harm. It is thought that there is something in the intestinal secretion of very young infants which reduces nitrate to nitrite.

Most of the cases reported in this country have come from the north central area. A special survey in Minnesota recorded 139 cases with 14 deaths. Two cases have been reported from New York State.

In order to call attention to the possibility of this condition occurring in Maine, the following history is reported although laboratory confirmation is lacking because of rapid recovery.

R. M., six weeks old, the second child of healthy parents, was born normally, and was normal at birth. The birth weight was seven pounds, thirteen ounces. She was fed on a normal formula of evaporated milk and was given water between feeds, the total daily water intake being about a quart. She did well for three weeks, and then the parents felt that her color was gray. This became daily deeper, and a more pronounced blue until at about five weeks she was definitely cyanotic in spells lasting several hours. The cyanosis was first noticed on the roof of the mouth, the gums, and the nails. There was no day without a spell of cyanosis. A few days before being seen she started regurgitating and vomiting her formula. A feeding of clear evaporated milk without water was retained, but water was vomited. There had been no choking or wheezing.

Examination showed a well developed and nourished baby, dusky in color, whose nail beds were blue. The weight was nine pounds, fourteen ounces. The heart rate was rapid, but no enlargement was found and there was no murmur. The physical examination was otherwise normal.

The baby was hospitalized for observation and the father was asked to have the well water tested. In the hospital she retained her feedings. The color returned to normal before methemoglobin determinations could be done. Thereafter she had no more cyanosis and no vomiting.

Barium swallow showed no abnormality. "Films demonstrated a small heart with a rather deep notch in the region of the pulmonary artery. The supra cardiac shadow is rather wide to the right, part of which may be normal thymus and part slightly distended vessels such as the superior vena cava. The apex of the heart is only slightly above the leaf of the diaphragm."

The infant was discharged after a few days and had no trouble at home where she was given water from another well. On one occasion she was given water from the well in question, took only about a quarter of an ounce, and vomited it.

Investigation by the District Sanitary Engineer of the State Department of Health showed the well was about a year old. It was 120 feet deep. About twenty-

* From the Pediatric Service, Eastern Maine General Hospital, Bangor, Maine.

eight feet away was an abandoned concrete cistern full to within ten inches of the top with sink waste water. The privy was located sixty feet away. The compost pile was 132 feet away, and the drain from the cattle tie-up, eighty-five feet from the well. Analysis of the water was as follows: Album. Ammonia 0.096 ppm.; Nitrites 8.025 ppm.; Nitrates 30 ppm.; hardness 307 ppm.; ph. 7.1; chloride 50 ppm.; no b. Coli.

The Sanitary Engineer concluded that, "Presumably the major source of pollution of the drilled well is the sink waste water which evidently seeps from the old cistern into the surrounding ground. It appears that the high nitrate content of the water from the drilled well caused the infant's cyanotic condition."

Edward W. Moore, Associate Professor of Sanitary Chemistry at Harvard was asked if 30 ppm. of nitrate in water could account for cyanosis. In his reply he quotes Comly as stating that the maximum permissible concentration is 20 and goes on to say: "Others have proposed limits of 10 ppm. On this basis I should say that the 30 ppm. that you observed would be quite able to cause mild symptoms of methemoglobinemia. It is somewhat difficult to state exact limits since the amount of water consumed by the infant also enters the picture. However, your value is well above what is regarded as the danger line."

The Committee on Sanitary Engineering and Environment of the National Research Council have advised that water from private household wells having nitrate nitrogen content in excess of 10 ppm. be regarded as unsafe for infant feedings.

The father writes that the baby has had no more cyanosis. She is now about a year old, normal physically and mentally.

The absence of physical signs of trouble capable of causing cyanosis, the rapid recovery when water from another source was given, and the normal subsequent development make the diagnosis a reasonable one. Contaminated well water should be considered when cyanosis occurs in an infant who shows no evidence of organic disease.

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# PRACTICAL POTASSIUM THERAPY* **

Wilbur B. Manter, M. D.

The importance of potassium in fluid replacement and maintenance therapy has only recently been emphasized. Excellent reviews with references to detailed studies of various aspects of the subject are available.[1, 2] These references should be consulted by those who are interested in the use of potassium but are not familiar with this subject.

The subject is at best a complex one. In view of the very real dangers in the therapeutic use of potassium, its administration should not be undertaken haphazardly. Some knowledge of potassium physiology is basic to the development of a sound concept of the overall problem. Circumstances with which serious potassium deficit occurs must be appreciated in order that the deficiency be suspected. The diagnosis must be established and the principles of therapy clearly understood before treatment is undertaken.

A practical plan for carrying out treatment can only be reduced to general terms. Specific dosage and method of administration must be planned to meet the particular needs of the individual case. Except for the standard treatment of the rare patient with familial periodic paralysis, there is always the additional problem of fluid replacement or maintenance therapy. This must be a first consideration. It is to be understood that potassium administration is to be integrated into the overall plan for fluid therapy.

PHYSIOLOGY:

*Potassium*

*Body content — high (twice sodium).*

*Serum concentration — low (4.0-4.5 meq.) kidney excretes excess.*

*Loss — obligatory renal and abnormal fluid loss.*

The body contains large amounts of potassium, in fact twice the quantity of sodium. Potassium is mainly contained within the cells. The blood serum concentration is low, normally only 4.0-4.5 meq./liter (16-20 mgm. %). The effector organ for serum concentration control is the kidney. Serious toxic effects may occur if the serum concentration doubles the normal value. A most dramatic toxic complication is cardiac arrest.

These few facts make it evident that in treatment of severe potassium deficiency large amounts of po-

* Presented at Fall Clinical Session, Maine Medical Association.

** From the Medical Service, Eastern Maine General Hospital, Bangor, Maine.

tassium need to reach the body cells in spite of the low and narrow limits of concentration at which it must travel through the circulating blood. It is then obvious that: (a) Adequate fluids to establish good renal function must precede the use of potassium, and (b) the introduction of potassium must be slow.

With no potassium intake, but with fluid intake sufficient for a usual urine output, potassium continues to be lost through the kidney, a loss estimated as high as several grams daily.[3] Abnormal fluid losses, as by vomitus, tube drainage, diarrhea, etc., contain potassium, often at concentrations equal to several times that of the serum.[4]

COMMON CAUSES:

*Potassium Deficit*

*Large gastro-intestinal fluid loss.*

*Prolonged parenteral feeding without potassium intake.*

*Diabetic acidosis.*

*Post-operative phase — extensive surgery.*

The many conditions resulting in large gastro-intestinal fluid loss are well known and include loss by vomiting, through tubes, through fistulae, and by diarrhea. It is also to be remembered that large amounts of fluid may be excreted into the intestine, as in "paralytic ileus," and be lost for body use without being actually lost from it.

Ordinary parenteral feeding provides for a generous urinary output. With this, an obligatory renal loss of potassium occurs which continues while sodium moves into the body cells and potassium is released from them.[5]

In diabetic acidosis before treatment and in spite of potassium loss that may be high, the serum potassium concentration is usually normal or even high.[6] This is possible because potassium is made available from protein and glycogen breakdown. With antidiabetic treatment potassium is believed to be taken up in carbohydrate metabolism. The cell deficits are replaced and there is loss of potassium through the kidney.

In the immediate post-operative phase following extensive surgery, before the patient begins appreciable oral intake, significant potassium deficit may develop even without an obvious cause for large potassium losses. A large loss may occur through the kidney and shifts within the body may occur at this time, presumably because of stimulated adrenocortical function. The potassium deficits that may be produced by DOCA, ACTH, or cortisone are perhaps illustrative of the mechanism involved. A state of "refractory hypochloremic alkalosis" has been recognized as occurring frequently after major surgery. It is characterized chemically by a low serum chloride, an elevated $CO_2$, and usually by an elevated NPN. It has been considered "refractory" because the low chloride does not respond to sodium chloride treatment. It has been recently recognized that hypopotassemia frequently coexists and when it does the syndrome may be relieved by potassium therapy.[7, 8]

Equally important, however, to the potassium loss in the development of the deficiency state is the interference with oral intake in these conditions mentioned. With ingestion of any reasonable amount of food or of electrolyte-containing fluids as fruit juice, milk or meat broths, a potassium problem rarely exists, except in some infant diarrheas. This last needs no discussion, for pediatricians in general were the first to recognize the value of and to be familiar with potassium therapy.[9]

DIAGNOSIS:

*Recognize conditions leading to potassium deficit.*

*Symptoms — muscle weakness, especially diaphragm and heart.*

*Lab. — E.C.G., serum potassium. Indirect evidence — Cl low, $CO_2$ high, NPN often high.*

Awareness of the situations in which potassium deficit occur is the most important factor in its recognition.

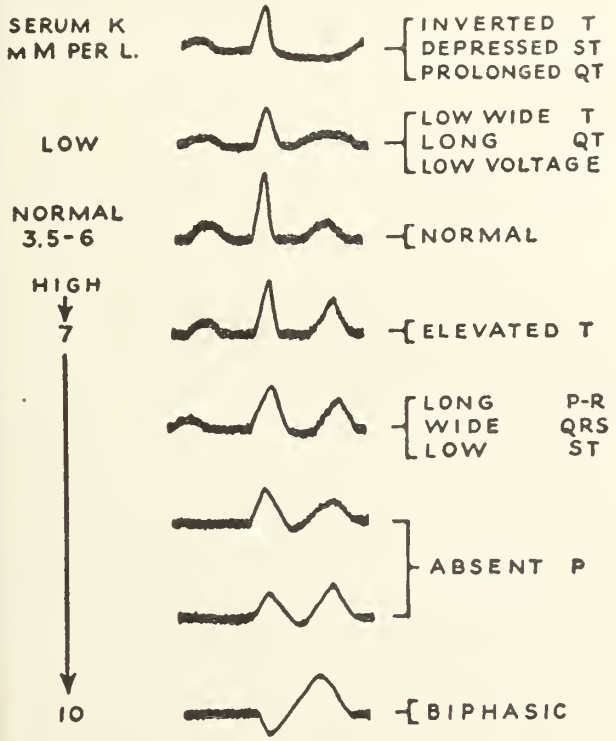
a) *Symptoms:* The symptoms and signs that have been attributed to the disorder are such that they may be easily attributed to the effects of the underlying disease and they may be late in their appearance. Apathy and weakness that may progress to paralysis of muscle generally, including the diaphragm and the heart, account for the major clinical symptoms. Lethargy, dyspnea, cyanosis often on a respiratory basis, abdominal distention, nausea, vomiting, and signs of cardiac failure may be due to this disorder.

The toxic symptoms of elevated serum potassium concentration might well be mentioned here as they could be confused with those of potassium deficit. The toxic symptoms include mental confusion, numbness, tingling, and weakness of the legs, peripheral vascular collapse, bradycardia, and totally irregular cardiac rhythm. Other than with misguided therapy, these symptoms can be expected to occur only with advanced states of renal failure, dehydration, and shock. Unexplained arrhythmia during therapy should be taken as a cogent warning.

b) *Laboratory findings:* There appears to be a direct relationship between the toxic symptoms of excess potassium and the serum potassium concentration. Unfortunately, the converse is not true. In even severe deficiency states, the serum concentration may be normal instead of low. Furthermore, the usual laboratory procedure for the determination of serum potassium concentration is difficult and may require several days or, as in many hospitals, may not be done at all. Rapid methods of determination, as by the

"flame photometer," will probably become practicable and more generally used in the future.

Other indirect laboratory evidence may be helpful, especially in suspecting "refractory hypochloremic alkalosis" with low serum Cl and elevated $CO_2$. If sufficient sodium chloride has been given so that chlorides are present in the urine in reasonable quantities without relieving the condition, it would seem reasonable to more strongly suspect potassium deficit. Incidentally, a urine chloride test may be easily performed at the bedside by a simple test.[10]




Electrocardiogram from Darrow.[2]

At the present time the electrocardiogram is the most practical laboratory aid, both in diagnosis and in guiding treatment. It presumably reflects potassium changes within the cells of the myocardium and can provide immediate information — with the help of a trained electrocardiographer. Though not entirely specific, electrocardiogram changes that may be related to abnormal potassium serum concentrations, both low and high, have now been well documented.[11, 12] The principal changes seen with potassium deficiency include various combinations of (1) prolonged Q-T interval, (2) lowered, rounded, and prolonged T waves, and (3) S-T segment depression. The early changes in high potassium concentration are high peaked T waves and increased QRS duration.

THERAPY:

*Danger — high serum concentration:*

1. *Contraindications — renal insufficiency.*
2. *Good renal output in progress.*
3. *Slow, dilute infusion — 4 hours minimum.*
4. *By mouth, if possible.*
5. *Lab. control — daily E.C.G.; serum K.*

The dangers, especially with parenteral use of potassium must be kept foremost in mind. Trouble is avoided by planning administration so that the serum potassium concentration does not increase above the normal range. This is difficult because the fluids used will need to contain potassium in it least several times the concentration of that in the normal serum in order that sufficient quantities can be introduced parenterally for effective therapy.

The following points must always be heeded:

(a) Therapy is contraindicated in the presence of renal (or adrenal) insufficiency.

(b) Good renal output must be in progress before potassium-containing fluids are given.

(c) A minimum of four hours must be used for the administration of the calculated daily dose.

The normal adult diet contains the equivalent of 8.0 gms. (100 meq.) of potassium chloride. However, 4.0-8.0 gms. is at present generally considered sufficient for a daily intake in therapy for adults. Darrow recommends the equivalent of 0.25 gms. (3 meq.) per kilogram of body weight as the maximum daily dose for babies. For prophylactic purposes approximately one-third of the maximum therapeutic dose is considered as probably sufficient.

When deficit has occurred, the therapeutic dose should be continued for six days, or until sufficient food can be taken to replace the deficit.[1]

The oral route is the safest and by all means the preferred method of administration. For patients eating poorly, or not taking meat broth, fruit juice, or milk freely, potassium chloride may be added to their liquids.

The only commercial fluid which contains significant amounts of potassium and which is generally available at this time is "Darrow's Solution" (containing 2.7 gm. KCl, 4.0 gm. NaCl and 52.0 cc. molar sodium lactate per liter). Darrow recommends that this be used subcutaneously, or if given intravenously, that it be diluted to 2-3 times its volume. He prefers to give potassium chloride intravenously at no greater concentrations than 2.0 gm. (25 meq.) per liter.

Other potassium solutions than Darrow's Solution will obviously be required under many circumstances. With this solution alone, a therapeutic daily dose of potassium often cannot be given without exceeding the required amounts of sodium. Also, in instances of frank alkalosis, this solution would not be advisable.

*Basic daily therapeutic dose — adults 4.5 gm. (60 meq.) KCl — 2000 cc. i. v. or in 1000 cc. 3.2% glucose S.C.*

*Therapy range — 4.0-8.0 gm./day.*

*Prophylaxis — 2.5 gm./day.*

*Infants — 0.1 gm./lb./day — maximum dose.*

It is recommended that 4.5 gm. (60 meq.) of potassium chloride be taken as the basic daily therapeutic dose for adults. This is to be added to 2000 cc. minimum of the fluid to be given intravenously as part of the patient's daily fluid requirement. Commercially prepared 10 cc. ampoules containing 1.49 gm. (20 meq.) of potassium chloride are available and may be conveniently used. The rate of infusion is to be carefully controlled so that the fluids containing this quantity of potassium chloride utilize a minimum of four hours for their introduction. It is desirable that a small amount of methylene blue be added with the potassium to serve to differentiate this infusion from the usual fluids ordinarily introduced at a more rapid rate.

Electrocardiograms daily before treatment are to be taken to guide therapy. Blood samples for potassium and other indicated determinations should similarly be taken.

Subcutaneous administration is not recommended for general use, mainly because of the variable rate of absorption under various circumstances and because of the possible relation of subcutaneous infusions to the development of thrombophlebitis.

Since some of the intravenous vitamin B preparations are precipitated by potassium solutions, the two should not be administered in the same solution.

TOXICITY:

*Potassium Chloride*

Related directly to *increased serum concentration.*

*Causes — therapy, advanced renal failure, dehydration, or shock.*

*Symptoms — mainly cardiac, bradycardia, irregular rhythm, peripheral vascular collapse, asystole.*

*(E.C.G. — quickest Lab. aid).*

*Treatment — stop K, use glucose, measures to increase renal output.*

If the diagnosis of potassium deficit is correct, and therapy is properly given and carefully controlled, the development of potassium toxicity is very unlikely. However, in the event that it does occur, the following measures are recommended: (a) Glucose intravenously to help carry potassium out of the serum to the cells, and (b) measures as indicated to increase the volume of renal excretion. Intravenous calcium has only temporary value but may be tried.

## Summary

The administration of potassium is necessary for the proper treatment of potassium deficiency. The etiology, diagnosis, and therapy of potassium deficiency are discussed in the light of present concepts of potassium physiology. The use of the electrocardiogram is stressed in establishing the diagnosis and in following the results of therapy. Specific recommendations are made concerning the daily potassium dosage and the methods of administration. The risks of therapy and means of minimizing possible dangers are emphasized.

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One hundred and forty anti-tuberculosis clinics are being equipped in Poland by UNICEF with WHO technical assistance. The first shipment of 30 X-ray units provided by UNICEF left Rotterdam for Gdynia this month.—*WHO Newsletter*, February-March, 1950.

Trained employees are more valuable to an organization than new employees, and periodic health surveys may prevent many physical disasters and prolong the working life and capacity of faithful workers.—Edward I. Salisbury, M. D., F. A. C. S., *New York State J. Med.*, September 15, 1950.

# CLINICAL STUDIES WITH CORTISONE*

Robert J. Barrett, Jr., M. D., and Martyn A. Vickers, M. D.

Cortisone is one of the crystalline compounds isolated from the adrenal glandular extract and considered to be one of the substances produced by the cortex of the adrenal gland. The original compound was developed by F. C. Kendall and his associates at the Mayo Clinic and named Compound E by this group. Other investigators have also reported similar compounds independently as the compound FA of Reichstein and compound F of Wintersteiner and Pfiffner. Cortisone was synthesized by Merck and Company as the acetate and produced commercially through a synthesis developed by the combined efforts of the Mayo Clinic group and the Research Laboratory of the commercial producers.

Chemically this adrenal steroid substance is the more active physiological compound of the 11, 17-oxysteroid group, which is one of the three large groups of the corticoadreno steroid hormones. This steroid has definite metabolic effects both on normal and pathological organisms involving the protein, carbohydrate, and fat metabolism; the function of endocrine glands; the immunological response of the organism; and many other effects now in the process of study.

The treatment of the cases to follow later in this paper deals primarily with a group of dermatologic and allergic problems. In following this line of study, Cortisone was used, as it is felt that we were using specific quantities of a known substance and could therefore estimate clinically the progress and end result in the problems studied.

It is now considered that the parenteral introduction of Cortisone brings about a suppression in the production of the similar adrenocortico steroid. Also when a sufficient quantity is used, complete suppression of the adrenal synthesis may be induced. It is recognized that the adrenocortico tropic hormone of the pituitary gland may be influenced by the circulating titer level of the corticoadreno steroid, and that higher centers and the pituitary gland may be stimulated by epinephrine released through the influence of stress. These factors clinically would be very difficult to evaluate. This resultant reduction of the amount of the Cortisone-like substance is replaced with specific quantities of Cortisone. Thus effects and results could be studied clinically.

The definite mode of action of this substance specifically in diseases can at the present time only be explained in light of the known effects in reverse. The present available information indicates that it has specific action in the following effects:

(1) Nitrogen balance is on the negative side either through increased protein catabolism and or decreased protein anabolism.

(2) Carbohydrate balance is upset and is manifested by glycosuria, hyperglycemia, increase of liver glycogen and glucogenesis both from formation of glucose and glycogen from other non-carbohydrate sources, such as protein and fat. Enzyme action here is exerted as shown by increased insulin requirements in the diabetic individual.

(3) Fat metabolism is involved and is manifested by increased fatty absorption and deposition.

(4) Electrolytic balance is upset with increased retention of the sodium ion and increased excretion of potassium, calcium and phosphates.

(5) Depression of activity of connective tissue (fibroblasts, blood vessels and ground substance) with prevention or arrest of the enzyme action involved with mesenchymal cells.

(6) Other vital activities such as changes in menstrual cycle due to influence indirectly on estrogenic substance either by pituitary or ovarian suppression are noted. Blood changes are noted both physiologically and chemically as with alteration of the blood pressure changes, in the cellular and chemical elements of the blood and their associated organs such as the bone marrow, lymphatic system, and spleen.

(7) Alteration of the immune reaction itself is noted and is manifested by marked shift in the time elements of the inflammatory reaction and reduction of circulating antibodies while under treatment.

(8) Definite alteration in histamine production.

It is known by other investigators that the normal output of this corticoadreno-steroid varies in the individual according to stress, as well as varying from one individual to another. These investigators found that the quantity will vary from 15 mgm. to 100 mgm. in 24 hours.

In view of the above alteration of vital activities of the living organisms, the quantity of the drug and time interval of dosage in the use of Cortisone will be noted in the report of the following cases.

It is felt that adequate relief of symptoms can be obtained by using enough of Cortisone to suppress the adrenal cortex and to replace the amount withdrawn by the suppressed adrenal gland. Too high dosage results in the toxic physiological alterations of the organism with resulting states such as those reported by Behrman and Goodman, where typical Cushing syndrome developed. Inadequate dosage, particularly where small daily quantities are used, do not result in any satisfactory clinical response.

* From the Allergy Service of the Eastern Maine General Hospital, Bangor, Maine.

The reason for this is that the smaller dosage may suppress a normal adreno-cortical output of 100 mgm. daily, so that the individual would have available a less quantity than that which he normally is producing daily. Here then, it could not be expected that any clinical response of a satisfactory character could be expected. Rather there may result a further aggravation of the existing disease. This will be noted in the cases to follow in this report. The Cortisone dosage found to be effective and subtoxic was 100 mgm. in the individual dose. The quantity used per day was no more than 200 mgm. and in the maintenance period following recession of symptoms the time interval was increased between doses, but the quantity was not decreased.

### Asthma

(1) M. R., 43, white female, had a bronchial asthma existent for 27 years. Previous severe attacks were associated with housedust, grass pollen, and ragweed seasons, and associated with pulmonary infections. The patient had been relatively asymptomatic for two years when moderately severe asthma recurred following a pulmonary infection. Her asthma responded to treatment while in the hospital but recurred after discharge in two weeks. She was again hospitalized but did not do well, probably due to the grass pollen season. Cortisone therapy was instituted. The patient received one gram of Cortisone in eight days receiving 200 mgm. in divided doses on the first and second day of treatment. Relief was almost immediate as the patient was comfortable in twenty-four hours and entirely free of any signs or symptoms in fifty hours, having received 400 mgm. in divided doses. Dosage was reduced to fifty mgm. daily for nine days, then 50 mgm. every other day for sixteen days. Since the patient was asymptomatic treatment was discontinued. Twenty-two days later the patient again developed asthma with some emphysema. Cortisone was given at twelve-hour intervals for two doses with complete subsidence of the asthma. Since then the time interval has been increased from five to seven days, so that the patient is completely free of symptoms when receiving 100 mgm. every seven days. She had an asymptomatic ragweed season.

(2) B. H., 57-year-old white male with an intrinsic asthma of twenty years' duration unrelieved by any of the usual methods of treatment was started on Cortisone, 200 mgm. daily, for three days then 100 mgm. daily. Within seventy-two hours he had complete relief of his asthma and in five days he found he was able to climb a hill without dyspnea for the first time in twenty years. After receiving a course of two grams, treatment was discontinued for thirty days. He again developed asthma and was given one gram of Cortisone which cleared him of asthma, and at this time he has been free of difficulty for two and one-half months.

This patient also attempted eating a little lobster, to which he had known sensitivity, and as a result, though under Cortisone therapy, developed an asthmatic attack.

(3) A. J., 70-year-old white male, who was a severe intrinsic asthmatic with previous involvement over twenty-five years, had gradually been unrelieved by the usual methods while being hospitalized. He was given a course of Cortisone, dosage being 100 mgm. two times daily for four days, then 100 mgm. daily for twelve days. He had marked relief of his difficulty and generally felt the best he had been in many years. Reduced dosage was used in the follow-up period using 50 mgm. at weekly intervals. Despite this the patient developed more difficulty with asthmatic attacks and recurrence of infection. He was given a second course of increased amounts of Cortisone with complete relief again in seventy-two hours. After this the Cortisone was discontinued and his asthma returned in forty days. Cortisone therapy was again instituted, the patient receiving 200 mgm. daily for four days then 100 mgm. daily for three days. He is now receiving 100 mgm. daily at seven-day intervals and is asymptomatic.

(4) M. C., a 6-year-old white female had very severe asthma of two years' duration with a history of previous bad colds and bronchial trouble for many years. During the six months previous to Cortisone therapy she had been having a difficult time with severe attacks requiring hospitalization and oxygen therapy to afford relief. Just previous to Cortisone therapy she was hospitalized in status and in spite of intensive therapy had shown no response to treatment. She was given 100 mgm. twice a day for four days, followed by 100 mgm. daily. The patient's status was relieved in forty hours and in seventy-two hours she was comfortably sitting out of bed. After hospitalization the patient had one episode of difficulty which was relieved by usual methods, and has now been free of difficulty for two months.

(5) C. R., 52-year-old white male, a severe emphysematous asthmatic with marked pulmonary fibrosis had not had any relief for a period of five months, though he had received intensive therapy. The patient was in such severe difficulty that he was practically unable to do many of the simple ordinary things essential for living. He was given a course of Cortisone receiving 100 mgm. twice daily for five days followed by 100 mgm. daily. Relief objectively was excellent. The emphysema was relieved by 50% and the patient's general physical status was improved 100%. Spirometric studies showed an increase in expired air of 30% and this has been constantly maintained for two months.

### Conjunctivitis

(1) I. L., a 40-year-old white female was seen on August 24, 1950, for hay fever and vernal endothelial keratoconjunctivitis. She had previously been treated for this difficulty in 1944 and was known to be sensitive to both timothy and ragweed for which she was treated successfully with no difficulty until the present episode which started in July, 1950. She was unsuccessfully treated with pollen extracts until September 19, 1950. Patient was given 500 mgm. of Cortisone in three days, followed by 100 mgm. daily for two days. Results were excellent so that in twenty-four hours there was complete subsidence of the hay fever and there was 80% absorption of the keratosis in four days. Follow-up therapy for four days consisted of a one to five dilution of Cortisone used as drops hourly while awake, after which time the eye was found to be completely normal. There has been no recurrence.

(2) L. P., 59-year-old white female developed a conjunctivitis and when first seen was existing for a period of five days. Cortisone diluted one to five was administered by conjunctival instillation. Relief was rapid so that complete recovery had occurred in five days.

(3) E. R., a 38-year-old white female had an atopic dermatitis of the antecubital fossae of both hands and wrists, and a vernal conjunctivitis due to grass and house dust sensitivity. These diseases had been present for five or six years with exacerbations and remissions. She has never been out of difficulty for more than twenty days even to a moderate degree. There was a severe flareup of conjunctivitis during the pollen season, with an associated severe exacerbation of dermatitis. Cortisone therapy was instituted with the patient receiving 100 mgm. twice daily for two days followed by 100 mgm. daily. The patient's eye cleared up completely in four days, and the skin had improved 70% in six days. The patient went along without difficulty, the skin gradually healing when she broke her avoidance diet and developed an acute flareup of both the dermatitis and conjunctivitis. In addition to this, she forty-eight hours later developed a superimposed dermatitis venenata while bean-picking. Cortisone therapy was discontinued and the patient was put on a very strict avoidance regimen with gradual subsidence of her difficulty.

### Atopic Dermatitis

(1) C. B., a 35-year-old white female with a severe generalized atopic dermatitis of 20 years' duration with an additional history of dermatitis as a child. This patient had previously been unsuccessfully treated with every known method of therapy by many physicians including the authors. This patient received 1.6 grams of Cortisone over a period of 13 days receiving 200 mgm. daily for three days, followed by 100 mgm. daily. Results were so good that dosage was reduced to 50 mgm. daily for three days, then discontinued, at which time the skin was 75% cleared of atopic dermatitis. The patient then developed an acute flareup within five days. A second course of Cortisone was instituted, the patient receiving 1 gram over a period of ten days. No change was noted other than the observation of the patient that the skin was more reactive than it had been for more than six weeks. The patient's skin at the present time is much the same as previous to Cortisone therapy.

### Psoriasis with Arthritis

The following cases are presented for the purposes of demonstrating the results of treatment of psoriasis with arthritis.

(1) R. M., a 50-year-old white male had a generalized psoriaform dermatitis involving particularly the scalp, groin, perianal area and buttocks, the hands and fingernails. He also had an associated arthritis with marked involvement of the hands. He was given 100 mgm. twice daily followed by 100 mgm. daily. There was improvement of the arthritis in seventy-two hours and ability to make a fist in seven days. The skin improvement was not as rapid nor as spectacular. The lesions became flattened and thinned out. The pruritis was diminished, and at times was absent. There was a thirty to forty percent recession of the lesions with almost entire clearing of the scalp and marked improvement of the fingernails. The patient has been maintained on 100 mgm. of Cortisone daily for many weeks with symptomatic control of the skin and arthritis.

(2) C. P., a 67-year-old white female had a psoriasis of 11 years' duration distributed on the hands, feet and perianal region with a few spots on the abdomen. When she was first seen in 1949 she had severe associated arthritis with fixed joints of the feet and ankles, fingers and wrists. Other forms of therapy were instituted with about 30% improvement of the skin and 50% improvement of the joints in a six-months period. Relief of the pruritis was enough so that she could sleep and she was able to walk about with the aid of canes which she was then able to grasp. Recurrence of her difficulty led to a course of Cortisone. She was given 200 mgm. of Cortisone for five days, then given 100 mgm. daily for a total of two grams. Following this the patient has been maintained on 100 mgm. twice weekly. The results were gratifying as the skin has cleared to 80% of the previous involvement and the joint symptoms have steadily improved.

### Discussion

I. Asthma:

In the treatment of asthmatic patients it is felt that with 200 mgm. of Cortisone daily a status will be

relieved in 24 hours to 72 hours. It is essential to continue to give the patient 100 mgm. daily for at least seven days more. Following the use of Cortisone in the treatment of the asthma will be elective. Certain patients may require repeated courses of Cortisone at infrequent intervals depending upon their clinical response; others will require a maintenance dose to be administered at varying intervals. This will of necessity have to be selected for each individual. It is to be noted that it is essential that no less than 100 mgm. should be given in any individual dose. Less than this will result in unsatisfactory clinical response. It is also noteworthy that the asthmatic individual will have to follow an avoidance regimen with respect to foods, and a protective regimen with respect to inhalant antigens.

II. Allergic Conjunctivitis:

In our hands the response of Cortisone has been very satisfactory and may be reduced to an office procedure. Methods other than the parenteral route may be employed such as that utilized in one of our cases. The conjunctival installation seems to be very satisfactory in the simple allergic conjunctivitides. However, if an associated or other condition exists as it did in one of our cases, the combined parenteral and conjunctival instillation is the method of choice. Again it is essential that an avoidance regimen be strictly followed as Cortisone does not appear to be a protective or prophylactic substance in itself.

III. Atopic Eczema:

The treatment of atopic eczema has not been as satisfactory as expected in the cases we have treated. The initial response to Cortisone gives the patient and physician a false impression since it is so dramatic in clearing so much of the reacting skin. It is felt that it is essential that the patient be informed of this before the treatment is instituted. It is possible that the future treatment of atopic eczema may be pursued along other lines or the answer may be found in long and continuous use of Cortisone, but with larger doses.

IV. Psoriaform Dermatitis:

Cortisone administration to patients with psoriasis and complicating arthritis offers sufficient symptomatic relief to warrant its use, even though the response has not been 100% in the cases we have treated. Again, as in other forms of arthritis, maintenance in the use of the hormone is essential to keep the patient asymptomatic. Otherwise recurrence can be expected.

In the treatment of all of the previously reported cases the only toxic symptoms encountered were fluid retention and an euphoria. The fluid retention in all cases was controlled by restricted salt intake and seemed to be satisfactory in every case. It is felt that the use of 200 mgm. of Cortisone initially in the adult patients is a subtoxic quantity, and that successive doses during a maintenance period, irrespective of the time element, should not be less than 100 mgm.

## Conclusions

1. Allergic asthma with and without status responds well to Cortisone.
2. Repeat courses of Cortisone or maintenance doses of Cortisone varying from five days to fourteen days are of aid in controlling asthma.
3. Conjunctivitis responds well to the conjunctival instillation of Cortisone, but where co-existing allergic diseases are present, the parenteral use of Cortisone is necessary, along with conjunctival instillation and avoidance regimen, to obtain a satisfactory response.
4. Atopic eczema responds well initially to Cortisone but a relapse can be expected with decreasing doses. Prolonged treatment with larger doses may be the eventual answer to this difficulty.
5. For optimal therapeutic results no less than 100 mgm. of Cortisone should be given in any single injection, irrespective of the time interval.
6. Psoriaform dermatitis with co-existent arthritis responds well, but not completely, to Cortisone.
7. The period of time immediately following the withdrawal of Cortisone is dangerous to the patient because of the maintained suppression of the adrenal cortex.

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# SEVERE HEMORRHAGE WITH THE USE OF ANTICOAGULANTS IN THE PRESENCE OF STATUS ASTHMATICUS*

Byron V. Whitney, M. D.

The danger of hemorrhage from anticoagulants, namely heparin and dicumarol, has troubled clinicians since they became available for clinical use. Heparin has been used extensively for more than twelve years, and dicumarol for nine years. There is a greater incidence of hemorrhage with dicumarol than heparin because of the former's delayed and longer duration of action.[1] Serious hemorrhage resulting from dicumarol therapy is usually due to improper control of the drug,[2] inadequate laboratory control, poor medical supervision of dosage,[3] or to the use of the drug when dicumarol is contraindicated. These contraindications[4, 5, 6, 7] are: 1. Hepatic insufficiency, 2. blood dyscrasias, 3. renal insufficiency, 4. recent operation or injury to brain or spinal cord, 5. subacute bacterial endocarditis, 6. pregnancy, and 7. ulceration of gastro-intestinal tract. Dicumarol should be used cautiously in patients who have: 1. ulcerative lesions, open wounds, or potentially bleeding surfaces, 2. vomiting due to gastric or intestinal obstruction, 3. continuous or repeated gastric or intestinal drainage, 4. malnutrition, and 5. hypertension, particularly if there is a history of previous cerebral hemorrhage. To the last list a #6 should be added, namely; excessive coughing as in status asthmaticus.

Duff and Shull[8] reported twenty-three cases of death from hemorrhage in patients who had been receiving dicumarol. Collins[9] and O'Connor et al.[10] each reported one death associated with dicumarol treatment. This is a total of twenty-five cases of reported fatalities and there are undoubtedly many more not reported. Many minor and major hemorrhages have occurred with anticoagulant treatment but with adequate treatment they have subsided. An aid in controlling the dosage is a record that may be kept in the form of graphs of patients who are on anticoagulant treatment. The prothrombin times expressed in percentage of normal and the clotting times are recorded vertically; the date and dosage are recorded horizontally. A good diagram of this has been given by Takats.[11] In spite of adequate laboratory and clinical control hemorrhage may occur in the presence of therapeutic levels of activity of the anticoagulant. The safe therapeutic level for dicumarol has been found to be 30% to 20% of normal for the prothrombin time. The coagulation time (Lee-White), 15-30 minutes (Normal 5-10 min.); (capillary coagulation time), 10-12 minutes (Normal 3-6 min.) is the safe therapeutic range for heparin.

In four of the twenty-five fatal hemorrhages previously mentioned the prothrombin times and coagulation times were maintained within the recommended effective and safe therapeutic levels. Some investigators believe that a vascular factor may be present.[12] Vasodilatation of arterioles, capillaries, and venules[13] has been observed and recently an increase in the coronary flow volume[14] has been reported. Heparin has been shown to cause a thrombocytopenia.[15] In cattle fed spoiled sweet clover hay, as pointed out by Schofield,[16] and later by Roderick,[17] bleeding occurred at sites of stress and was more commonly present in fascia of muscles and subcutaneous tissues, with the local blood vessels showing no pathologic changes.

## Case Report

This 44-year-old white female had an emergency tracheotomy for respiratory obstruction caused by a papilloma of the vocal cord with laryngeal edema. She had a history of bronchial asthma since the age of seven years and in recent years had recurrent asthmatic attacks with respiratory infection. Following the tracheotomy patient had signs of bronchial infection with asthmatic breathing. This was fairly well controlled with penicillin, aureomycin, demerol, and aminophyllin. She continued, however, to have spasms of coughing. Six days after admission to the Eastern Maine General Hospital I saw this woman because of a sudden attack of dyspnea, cyanosis, and right chest pain. She had definite tenderness in the calf of the left leg and along the course of the femoral vein to the fossa ovalis. There was no swelling nor increased temperature of the left leg. Splinting of the right chest was present. The white blood count, sedimentation rate, temperature, pulse and respirations were elevated. My impression at this time was phlebothrombosis of the left leg with pulmonary embolus. A chest X-ray later verified pulmonary infarction of the right lower lobe. Initial prothrombin and coagulation (Capillary Method) times were obtained which were as follows:

Prothrombin: Control—15 sec.; Patient—16 sec.; over 30%.

Coagulation: 1 minute 50 seconds.

The patient was given 200 mgms. depo-heparin sodium, 200 mgms. depo-heparin sodium with vasoconstrictors, and 300 mgms. of dicumarol. Twenty-four hours later she was clinically improved. The laboratory reports were:

* From the Surgical Service of the Eastern Maine General Hospital, Bangor, Maine.

Prothrombin: Control—15 sec.; Patient—17 sec.; over 30%.

Coagulation: 4 min. 30 seconds (Capillary tube method done by technician). 10 minutes (Slide technique done by myself.)

At this time the patient was given the same dosage of 200 mgms. of dicumarol, and 400 mgms. of depoheparin. Twelve hours later she vomited several times and twenty-four hours following last dose of anticoagulants she was found to be in "shock." The laboratory reports were as follows:

Prothrombin: Control—15 sec.; Patient—17 sec.; over 30%.

Coagulation: 1 minute 35 seconds (Capillary tube method).

Lee and White Clotting Time:

First tube—17 minutes 5 seconds.

Second tube—20 minutes 35 seconds.

Third tube—26 minutes 10 seconds.

Examination at this time revealed an apprehensive, perspiring, cold patient with no blood pressure or pulse. The abdomen was tender throughout but more marked on the right side. No distention was present and faint peristalsis could be heard. The lungs were clear and the legs negative. A diagnosis of hemorrhage was made. The patient was given IV fluids, 1000 cc. whole blood, and placed on levine tube suction. She recovered from the shock momentarily while receiving blood, but as soon as this was finished the blood pressure and pulse again disappeared. Ten hours following the first signs of hemorrhage the patient's condition was serious. The abdomen was distended, particularly on the right side, peristalsis could not be heard. In view of the continued unseen hemorrhage in the presence of therapeutic but supposedly safe heparinization level, one thought of sources of intraabdominal bleeding. The patient had a history of removal of the left tube and ovary and ceral and parietal peritoneum the tissues were hemorit was a question whether the right ovary was still present. She had had recent menstrual periods. Therefore, thinking of the probability of hemorrhage from a right corpus hemorrhagicum, this woman was prepared for surgery. 1000 cc. of whole blood immediately brought the blood pressure and pulse to a stable level. She was also given 250 mgms. of protamine sulfate intravenously.

Operation revealed extensive hemorrhage throughout the muscles of the anterior and posterior abdominal walls. About 1000 cc. of sero-sanguineous fluid was found in the peritoneal cavity. Beneath the visceral and parietal peritoneum the tissues were hemorrhagic. Both tubes and ovaries had been removed. No individual bleeding points were present in this diffuse and profuse hemorrhage. The abdomen was drained and closed. Protamine sulfate was given in 100 mgm. doses intravenously every three hours on two occasions; no more was available at this time. The coagulation time twenty-four hours after the previous report was:

Lee and White Method:

First tube—10 minutes.

Second tube—10 minutes 20 seconds.

Third tube—10 minutes 40 seconds.

Capillary tube method—3 minutes thirty-five seconds.

Prothrombin Time:: Control—15 seconds; Patient —17 seconds; over 30%.

Fifty mgms. of protamine sulfate every four hours for four doses was continued and whole blood given. The patient did very well and was discharged home on the tenth postoperative day.

## Comment

This case demonstrates extensive hemorrhage occurring at the therapeutic safe level for anticoagulants. Dicumarol can be discarded from consideration, as at no time was the prothrombin time percentage under 30%. The dosage of heparin was sufficient to bring about improvement in the plebothrombosis in twenty-four hours, and yet was within the safe margin. The capillary method of doing coagulation times is unreliable, which is contrary to the belief of Takats.[11] When heparin is being administered the Lee and White Method should be used as the index of treatment. Another point brought out by this case is the possibility of rupture of blood vessels by excessive coughing with initiation of bleeding, then a continuation of the hemorrhage in the presence of anticoagulant therapy.

An asthmatic of many years duration recently reported with a large mass on the right posterior chest wall for one year. This mass was biopsied for question of periarteritis nodosa. At the operation an old hematoma within muscle was found. The pathologist reported hemorrhagic muscle tissue.

## Summary

1. Review of the literature on the danger of hemorrhage with the use of anticoagulants even in the so-called safe therapeutic range.
2. Report of a case of hemorrhage in an asthmatic with the anticoagulant dosage adequately controlled within the safe, therapeutic level. Hemorrhage in this case was thought to be initiated by the coughing spasms, bringing about rupture of blood vessels and then bleeding continuing in the presence of heparin activity.
3. Successful treatment of this patient with protamine sulfate and whole blood.

4. The Lee and White Method of determining coagulation times should be used in following heparin activity.

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## CLINICO-PATHOLOGICAL EXERCISE

### Case presented at the Eastern Maine General Hospital, Bangor, Maine

Dr. Lawrence Cutler, presiding

This 44-year-old housewife was admitted to the E. M. G. H. because of a feeling, for about a month, that her breath was being cut off after exertion. Five years prior to admission she began to feel a lump in her throat just below the voice box which she "had to swallow over." About a year later she developed a feeling "like a rock" in her epigastrium which went up to her throat. Nervousness accentuated these symptoms. Her appetite has been poor for 5 years during which time she has been quite nervous and easily upset. For about one month prior to admission she has had, on exertion, a choking feeling as if her breath were cut off at the sternal notch. At night she was unable to lie down immediately as she choked and had to sit up for breath. Once she was adapted to lying down she could stay down all night. After these choking spells she had a non-productive cough. She had had no ankle edema, no substernal chest pain, rare colds and no hay fever or asthma. She has occasionally had aching pains at the corner of the left shoulder blade. In spite of loss of appetite she has gained weight in the last six years.

Physical examination reveals an obese white female with a dry, hacking cough. Temperature 102° F.; Pulse 108. There is minimal cervical lymphadenopathy with no thyroid enlargement. There is no apparent difficulty in swallowing. The breasts are large and pendulous. No masses are palpated. There is reduced chest expansion, on the left. Crackling moist rales are heard at the right base posteriorly. There are absent breath sounds, dullness and slight egophony at the left base posteriorly. There are accentuated breath sounds over the right chest anteriorly. Heart tones are clear, rhythm regular. No murmurs. Blood pressure 120/75. The abdomen is obese. There are no palpable masses. There is slight tenderness in the epigastrium. Pelvic examination reveals a small uterus with 2nd degree retroversion. There are no palpable adnexal masses. Sigmoidoscopy revealed a normal appearing colon.

Laboratory Findings: Hb. 12.5 gms. (80%); W. B. C. 9,400; Polys 73%; Bands 4%; Lymphs 21%; *Urine:* yellow; cloudy; alk.; 1.010; albumin 0.02%; sugar, neg.; acetone, neg. Microscopic reveals 0-2 leukocytes per h. p. f. and many bacteria. *Sed. Rate:* 23 mm./60 min. (Cutler).

Chest X-ray: Massive hydrothorax pushing heart and mediastinum to right. Some of fluid extended up along the lateral chest wall completely to apex.

Course in Hospital: After the removal of 1500 cc. of slightly turbid yellow fluid from the left pleural cavity the patient felt that "the rock" in her epigastrium had disappeared. Repeat films of the chest revealed a small amount of pneumothorax. An area of density 7.0 x 3.5 cms. could be seen extending above the air-fluid level. Examination of cell blocks of pleural fluid revealed malignant cells. Pap. smears, Class II.

A barium swallow, gastro-intestinal series and barium enema revealed a normal appearing gastro-intestinal tract. The feces were negative for occult blood. Smear of pleural fluid and gastric washings showed no acid-fast bacilli. Papanicolaou smears of bronchial washings were reported as Class I.

Following the chest tap and crysticillin, her temperature dropped to 100° F. She was discharged after 17 days of hospitalization. Nine days later she was re-admitted because of shortness of breath, loss of appetite, and loss of weight. Repeat cell blocks of pleural fluid revealed cancer cells. She was given a course of nitrogen mustard with minimal untoward effects, but continued to decline. She had one episode of gross hemoptysis followed by tenderness in the thighs for two days. Approximately six weeks after her first admission she complained of a "crushing headache." She awoke the following morning unable to move her right extremities or to speak. Frothy material drooled from her mouth. The right side of the body and face were completely paralyzed. Blood pressure was 85/55. Pupils were dilated, but reacted to light. She was unable to protrude her tongue. There was a flaccid paralysis of both extremities. Tendon reflexes were present bilaterally, more marked on left. Lumbar puncture revealed clear fluid with an initial pressure of 250 mm. $H_2O$. Pandy and cell counts were negative.

During the next two weeks her condition remained fairly stationary, with an upper and lower right facial paralysis, flaccid paralysis of the right upper and lower extremities, normal external occular movements, tongue protruding to right and jaw slightly deviated to the left. Tendon reflexes were three plus on the right, one plus on the left. Hoffman and Babinski signs were present on the right.

The patient then became more dyspneic and cyanotic with death 71 days after her first admission. Differential Diagnosis:

*Dr. Wilbur Manter:* We are presented with the history of a 44-year-old obese woman who, up to the time of her first admission, appears to be gaining rather than losing weight. There is a five-year history of peculiar symptoms in the anterior chest and neck. Throughout most of this time there was a latent period during which there seemed to be no particular change in her general condition. This was followed by a month of respiratory difficulty during which time the process appeared to enter a more rapid phase. She had fluid in the left chest which was said to have contained cancer cells. Although the endothelial cells of the pleura are sometimes difficult to differentiate from tumor cells, I am willing to accept the report that cancer cells were found on two occasions in the cell blocks. Fluid accumulated in the pleural cavity and later there appeared signs of central nervous system involvement. This suggests that we may be dealing with a malignant tumor which involves the lungs and the central nervous system. The barium swallow, gastro-intestinal series and barium enema appear to rule out fairly well the possibility that this tumor may have been primary in the gastro-intestinal tract. There was no mention made of any difficulty in swallowing food. There is no evidence submitted to suggest that there may have been a primary intraabdominal tumor. We have no evidence of renal disease. However, I should like to point out that the recorded urine specimen was alkaline containing one or two leukocytes and many bacteria which suggests that the urine may have been allowed to stand for some time before it was examined. It is possible that casts and red cells might have been overlooked under such conditions, but I find no other suggestion of renal disease. The first symptoms of the breath being cut off might suggest an anginal syndrome but I find no other leads to implicate the heart. Because she is a female and is 44 years old with normal blood pressure and no diabetes, I am willing to conclude that there is no primary cardiac disease.

It is rather difficult to explain the five-year latent period during which, without any remarkable progression of symptoms, the patient appeared to have pressure symptoms in the vicinity of her upper mediastinum. We should consider the possibility of a partially obstructing lesion within the trachea or upper bronchial tree. Because of the relatively long latent period we should consider then the possibility that the pressure symptoms were first due to a bronchial adenoma which subsequently developed malignant characteristics. Such a course is not uncommon in bronchial tumors. There are several findings which seem to be against this diagnosis. There is no history of asthma or wheezing. One would expect her to have developed an increasing bronchial obstruction with cough, recurring respiratory infections and more or less copious sputum. A bronchoscopy was performed and there is no mention made of biopsy or positive bronchoscopic findings. Since the symptoms suggest that the responsible lesion was relatively high in the bronchial tree, I would expect that after five years of symptoms a lesion arising in the bronchus would have been visible with a bronchoscope.

One should certainly consider the possibility of an extrabronchial lesion arising in the mediastinum. The course which this patient followed pretty well eliminates the benign mediastinal tumors such as branchial cyst, lipoma, neurofibroma, dermoid cyst, etc. There is no reason to suspect an aneurysm in this patient. One of the more common lesions involving the mediastinum is one of the lymphoma group of tumors. Over a five-year period we would expect that such a process would make itself manifest in some other location, that the patient would be more debilitated and that systemic effects would be evident. Furthermore, one would expect to see some beneficial response to the nitrogen mustard. Of the various members of the lymphoma group a lymphosarcoma would be the most likely possibility.

The thoracic neurofibromata are usually found in the posterior mediastinum and if they are malignant they are locally invasive and are apt to produce nerve root pain, bone invasion, bone pain, etc. I would expect such a tumor to produce X-ray evidence of a more discrete tumor mass. Teratomas are among the most frequent tumors of the mediastinum. They are usually benign. When malignant, pressure symptoms and a discrete tumor mass would be expected. Calcification is a common finding. We have no evidence of such a process in the X-ray reports. Tumors of the thymus gland are usually benign. Even when malignant the signs and symptoms are usually those of pressure. I have seen one such tumor which did extend into the left chest by contiguity. Seventeen malignant thymus tumors found in 17,000 autopsies were found to invade the pleura. These tumors are late to produce symptoms, as the structures within the mediastinum adjust themselves to the slowly growing mass until such time as there is no further room for adjustment. Then the pressure symptoms develop rapidly and dramatically. Such a tumor, however, should be demonstrable by X-ray as an encapsulated, lobulated tumor mass.

Pressure symptoms in the mediastinum can be produced by substernal thyroid tissue. In contrast to the high incidence of bronchogenic carcinoma in males we find that thyroid enlargements and tumors are much more common in females. We have no evidence that this patient was suffering from hyperthyroidism but physiologic hyperactivity is not a necessary accompaniment of thyroid enlargement. It seems to me that all of the findings in this patient can be explained on the basis of a carcinoma arising in a substernal thyroid gland. Carcinoma of the thyroid may be a slowly-growing tumor. In two sets of statistics which I have encountered fifty per cent of the patients had a five-year history of symptoms when they were first seen. It is of interest that this patient's symptoms are of five years' duration. If this patient had a substernal thyroid, the lesion may have started as a carcinoma or as an adenoma which subsequently underwent malignant degeneration. As the thyroid gland enlarges there is more room for expansion of the substernal portion and it may pull down the portion of the thyroid which normally occurs above the sternal notch. Such a process would readily explain the lump in this patient's throat situated just below her voice box and acting as a stimulus to repeated swallowing. As such tumors enlarge, the first symptom may be intermittent choking attacks or sensations of suffocation. The symptoms from such a tumor may vary with the posture of the individual and may be accentuated by lying down. This patient's symptoms were accentuated when she lay down, but she was apparently able to become adjusted in this position; so that she could remain lying down throughout the night. The natural history of thyroid carcinoma is extension to the lungs and osseous system. It metastasizes both by way of the blood stream and lymphatic channels. The most common bones involved are those of the base of the skull, sternum and spine. Involvement of the central nervous system could be explained either by extension from metastases in the skull or by way of the vertebral veins from possible vertebral metastases. One might have expected hoarseness to have been produced from such a substernal tumor with pressure on the recurrent laryngeal nerve. There is no note of hoarseness or of dilated veins in the neck. We cannot say much about the minimal cervical lymphadenopathy. If these glands had been supraclavicular or hard they might have been significant. I have assumed that the blood serology was negative (It was negative).

An episode of gross hemoptysis is described relatively late in her illness following the administration of nitrogen mustard. This was associated with tenderness in both thighs. One wonders about the possibility of a pulmonary embolus to account for this episode, but there is insufficient information to establish such a diagnosis.

Concerning the central nervous system disorder the onset was rapid with right hemiplegia and involvement of the cranial nerves supplying the right side. Paralysis of the muscles of mastication on the right could explain the deviation of the jaw to the left. These muscles have bilateral supranuclear innervation so that complete right facial paralysis involving the motor fifth as well as the seventh cranial nerves would suggest lower motor neurone disease. Involvement of the right ninth and tenth cranial nerves might contribute to the drooling and inability to speak. Involvement of the twelfth nerve on the right might account for the deviation of the tongue to the right. No sensory changes are noted. Since I know of no single lesion within the central nervous system which can produce a right hemiplegia and lower motor neurone involvement of the right fifth and seventh nerves, I am unhappy about any conclusion I can draw as to the location of the lesion. Furthermore, blood

was absent from the spinal fluid. In the absence of hypertension, diabetes or apparent source of embolus, unless it be tumor tissue, the usual antecedent causes for sudden intracranial disease in a forty-four-year-old female are not present. I can only suggest an unusual picture of involvement of the pyramidal tract below the decussation on the right and of the lower motor neurones of the motor fifth, seventh, twelfth and possibly the ninth and tenth cranial nerves on the right either by some sudden disturbance related to retrograde venous extension of tumor tissue or related to metastatic bone disease of the floor of the cranium. May we see the X-rays?

*Dr. Hugh Smith:* No bronchiograms were ever done on this patient. The first film on September 15 reveals a massive left hydrothorax with fluid extending up to the left apex. The heart and the mediastinum are shifted over to the right. The right lung is clear. It would seem as if more of the fluid were located anteriorly but one cannot be sure of this point because of the relatively more dense heart shadow. The fluid column is continuous to the apex. Sixteen days later fluid has been withdrawn. There is a left pneumothorax. The lung appears to be 25% collapsed. A nodular area of increased density 7.0 x 3.5 cms. can be seen extending above the air-fluid level in the film taken two days later. On October 11 fluid has reaccumulated in the left pleural cavity and extends up over the apex. There is a suggestion of thickened pleura. Films of the esophagus taken with a barium swallow show no lesions. A small area of increased density in the left axilla suggests calcification. The bifurcation of the trachea seems to extend a little more to the right than usual but the film was taken while the patient was lying down. There is a small area of sclerosis in the pubic bones to either side of the symphysis. The cartilage is gone and the bone is eburnated. Such lesions are sometimes seen following cystoscopy with the development of a periostitis. This may represent an old inflammatory process or a neoplasm. The gall bladder looks good. There are no stones. On many of the films her spleen appears a little enlarged. The upper gastrointestinal tract seems to be entirely normal. I do not see any pelvic mass. The stomach looks very good. The duodenum looks good. There is no indication of tumor of the head of the pancreas. The small bowel looks very good. There is no displacement. The barium appears in the colon in due time. There is slight sclerosis of the left sacroiliac joint. There is no scoliosis. Metastatic disease might produce the appearance in the sacroiliac joint. Colonography shows a normal appearing colon. I am unable to say whether the mass in the left lower lobe or pleura represents a bronchogenic tumor or metastasis from some other organ.

*Dr. W. Manter:* Were any studies made to look for deviation of the trachea or bronchi?

*Dr. H. Smith:* No special studies were made for this particular purpose. If there were such a mass we should be able to demonstrate pressure on the trachea or deformity of the esophagus in the barium swallow. The only mass we could demonstrate was in the left lower lobe, probably anteriorly.

*Dr. Robert Kellogg:* Is the mass in the lung surrounded by an area of calcification?

*Dr. H. Smith:* That is the edge of the collapsed lung medial to the pneumothorax.

*Dr. Harold Braun:* Is it unusual to have the heart pushed that far to the right with that amount of fluid?

*Dr. H. Smith:* Although the fluid has largely been removed in this film there is positive pressure from the pneumothorax. It may be that the heart is frozen in that position.

*Dr. Wilbur Manter:* The X-ray films do not seem to support the possibility of an upper mediastinal tumor. It is difficult to persist with the idea that a substernal thyroid tumor was responsible for her early symptoms. After the elapse of five years there are no X-ray changes to indicate a mass in this region. In view of the X-ray findings the most plausible diagnosis appears to be a bronchogenic carcinoma. With evidence of some apparent enlargement of the spleen and liver perhaps the possibility of a lymphoma should be considered more seriously. Of course the negative gastrointestinal series does not entirely eliminate the presence of carcinoma of the pancreas. My diagnosis, then, is bronchogenic carcinoma with metastases to the pleura and brain. This is a common source of metastatic brain tumors. Many neurosurgeons have explored the brain for primary brain tumors, only to find that the brain lesion was secondary to a silent lung tumor.

*Dr. H. Smith :* She apparently had a sudden cerebral insult and it sounds like a vascular occlusion. The cell count was normal and there was no blood in the spinal fluid. Perhaps she had an embolus or even an air embolus. Did anyone look at her eye-grounds?

*Dr. Wadsworth:* Her eye-grounds were said to have been normal.

*Dr. H. Smith:* Could the nitrogen mustard administered have played a part in the development of the cerebral lesion? What was the time interval between the administration of nitrogen mustard and the appearance of the shock?

*Dr. Harold Braun:* About two weeks. She had a peculiar kind of speech difficulty. She would try to say "good morning" but would be unable to get the words out. There seemed to be a motor deficit. The diminution of sensation in the right arm and leg appeared quite definite at one time.

*Dr. Wadsworth:* What was the dosage of nitrogen mustard?

*Dr. Harold Braun:* Her estimated weight was approximately 70 kilograms. We always use 0.1 mg. per kilogram. She was given 5 doses of 7 mg each.

*Dr. Manter's Diagnosis:*

Bronchogenic carcinoma with pleural and intracranial metastasis.

*Anatomical Diagnosis:*

Bronchogenic carcinoma, left lower lobe, with metastases to hilar lymph nodes, pleura, diaphragm, liver, adrenals, uterus and to left upper lobe.

Thrombosis of right femoral and pelvic veins with multiple pulmonary emboli.

Endocarditis of mitral valve with multiple emboli, to kidneys, spleen, heart and brain.

Squamous hyperplasia of esophageal mucosa.

Bilateral scirrhous hyperplasia of breasts.

*Pathologic Discussion:*

*Dr. Richard C. Wadsworth:* From many points of view this is one of the most interesting cases which I have had the opportunity to review. The left lung is firmly adherent to the diaphragm and both the visceral and parietal pleura are studded with small, pinkish-yellow nodules varying in size up to 2.0 cms. in diameter. The lung is compressed and noncrepitant throughout. The lymph nodes at the left hilus appear of approximately normal size. At the right hilus, however, is a large firm lymph node measuring 5.5 x 1.2 x 1.2 cms. A section through the left upper lobe reveals a uniform collapsed parenchyma. Sections through the lower lobe reveals a sharply defined yellowish-gray tumor nodule in relation to the inferior peripheral portion of the bronchus. It measures 3.5 cms. in diameter. Many smaller but similar nodules measuring up to 1.5 cms. in diameter are scattered beneath the diaphragmatic surface of this lobe. The diaphragm is thickened and firm and is almost completely replaced by yellowish-gray tumor tissue. No tumor is found either grossly or microscopically in the right lung. A small nest of tumor cells is found microscopically in the left upper lobe. The microscopic structure of the tumor both in the primary and metastatic lesions presents a striking picture. There is marked anaplasia throughout the tumor with the formation of many multinucleated giant cells and many atypical mitotic figures. Many of the cells have an appearance resembling fibroblasts. Only occasionally does one find scattered atypical cells of the signet ring type. The structure is quite similar to that described by Gaensler et al.[1] in epidermoid carcinomas following treatment with nitrogen mustard. Scattered gross tumor metastases are found in the liver and microscopic metastases are found in both adrenals. A few scattered metastatic tumor cells are found in the superficial myometrium in one section of uterus. In one section of the lower lobe of the left lung a medium-sized bronchus is lined by and filled with tumor cells. The peripheral location of the lung tumor explains why it could not be visualized by bronchoscopic examination.

When I asked about the amount of nitrogen mustard administered to this patient I was thinking in terms of the possible therapeutic value of nitrogen mustard in bronchogenic carcinoma. Karnofsky et al.[2] have recommended for this purpose 0.2 mg. per Kg. as a single daily dose for two days, i.e. a total of 0.4 mg. per Kg. The white cell count is determined daily, and if a significant leukopenia has not developed in one week, a third injection of 0.2 mg. per Kg. is given. In seventy-five per cent of their patients some clinical improvement occurred.

Examination of the heart revealed an occlusion of the anterior, descending branch of the left coronary artery by an embolus, completely occluding the deep branch supplying the anterior two-thirds of the interventricular septum. There was a mural thrombus in the left auricular appendage. This was firmly attached to the endocardium. There was also a soft, fibrinous vegetation extending along the entire circumference of the mitral ring and measuring 0.6 cms. in diameter. No organisms could be demonstrated in the vegetations on the mitral leaflet and a post-mortem blood culture showed no growth. There were multiple emboli which could have come either from the auricular thrombus or the mitral vegetations. There was a massive infarction of the spleen. There were numerous infarcts in each kidney and finally there was the embolus which caused the hemiplegia and which was probably responsible for the other neurological signs. This embolus was located at one of the bifurcations of the left middle cerebral artery and completely occluded the branch which extends upward to supply the left anterior central gyrus. Sections through this vessel reveal an organized thrombus without evidence of arteriosclerosis or tumor cells. The absence of cerebral arteriosclerosis and the demonstration of numerous other embolic lesions indicate that this lesion is a result of an embolus originating in the heart. Associated with this embolic thrombus is an area of cerebral infarction almost limited to the left anterior central gyrus or motor cortex. Examined in cross sections the cortical gray matter appears quite well preserved while the subcortical white matter has undergone softening with the production of a lesion similar to that described by Binswanger[3] in 1894 and which he called subcortical progressive encephalitis but which is now more commonly called subcortical progressive encephalopathy because it is seen most frequently in cerebral arteriosclerosis. It is not a true inflammatory process.

There were also demonstrated at autopsy a thrombosis of the right femoral and pelvic veins with multiple emboli to the right lung.

*Continued on page 472*

## Maine Medical Association Approves Hospital Association's Position on State Aid

Every physician is conversant with the plight of our hospitals. Payment for hospital care of the indigent at cost would go a long way to solving their problems. It seems only fair and just that this burden be met from public funds. But to achieve this will require the support of the people throughout the State. The demand must come from them. This should be forthcoming if they understand the situation.

The illustrations on the opposite page are from a booklet being distributed by our hospitals. They tell the story in a simple and graphic manner.

This campaign deserves the support of every member of the Maine Medical Association. Each physician is urged to see that these booklets have wide distribution. Copies are available at all hospitals. 50,000 signatures endorsing the campaign are needed. Whenever possible physicians are asked to collect the signed cards personally and to mail them to the Maine Hospital Association in a package or envelope.

If everyone does his part, we can be assured of the continuance of our hospital system here in Maine.

## MAINE HOSPITALS ARE FACING A FINANCIAL CRISIS!



THIS AFFECTS YOU!

1

In 1949-1950 8,184 charity patients accounted for 124,912 patient days in 54 Maine hospitals



2

It cost the 54 hospitals $1,585,113.28 to care for these 8,184 charity patients



3

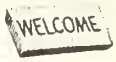
For their services the hospitals were paid only $699,747.04

Maine Hospitals LOST $885,366.24

4

Are hospitals legally bound to accept these charity patients?

No, they are not legally bound, but, MORALLY, they cannot refuse hospital service to the sick, even if they suffer a loss







5

Can hospitals continue to suffer these losses?

NO!

It would mean third-rate care for all

or

Bankruptcy for the hospitals




6

There is only one standard of hospital service

THE BEST

Hospitals, even though they are non-profit organizations, must operate on a sound financial basis....

Their bills MUST be paid

7

The $885,366.24 that Maine Hospitals lost MUST BE MADE UP!



8

To do this, Hospitals apply contributions from:

- Community Chest (if any)
- Income from endowments (though small)
- Private donations (when available)

BUT these account for only A SMALL PART of the amount needed

9

The remainder must be made up by increased charges to paying patients

In other words, when YOU are sick and hospitalized, YOU, as a paying patient, must pay part of this loss




10

Now, how should this cost of care rendered to charity patients be met:

1. By just the sick people?

or

2. By all the people of the State...?



11

There is only one answer....

THE BURDEN SHOULD REST ON ALL THE PEOPLE OF THE STATE



12

How can this be done....

ONLY BY ACTION ON THE PART OF OUR STATE LEGISLATURE:

Our representatives in the Legislature MUST see that hospitals are paid for the cost of hospital care rendered to charity patients



13

Act at once!

Sign and mail the postage-paid card on the back cover of this booklet

TODAY!

The figures shown in this booklet are certified by the State Department of Health and Welfare and are presented by the Maine Hospital Association

### MAINE HOSPITAL AID STATISTICS (JULY 1, 1949 TO JUNE 30, 1950)

| HOSPITAL | | STATE AID DAYS | TOTAL COST | STATE AID RECEIVED | NET LOSS PER DAY |
|---|---|---|---|---|---|
| Aroostook General | Houlton | 1,451 | $ 14,669.61 | $ 6,611.50 | $ 5.55 |
| Augusta General | Augusta | 2,668 | 38,552.60 | 12,256.36 | 9.86 |
| Bath Memorial | Bath | 1,591 | 19,521.57 | 7,305.38 | 7.68 |
| Brunswick | Brunswick | 1,081 | 12,517.98 | 4,991.14 | 6.96 |
| Calais | Calais | 3,337 | 33,503.48 | 15,476.59 | 5.40 |
| Central Maine General | Lewiston | 18,684 | 222,152.76 | 86,646.67 | 7.25 |
| Children's | Portland | 7,382 | 113,978.08 | 34,319.98 | 10.79 |
| Eastern Maine General | Bangor | 14,259 | 176,383.93 | 65,354.69 | 7.79 |
| Eastport | Eastport | 1,359 | 18,808.56 | 6,367.02 | 9.15 |
| Gardiner General | Gardiner | 1,102 | 15,251.68 | 5,123.41 | 9.19 |
| Goodall | Sanford | 1,251 | 14,899.41 | 5,817.35 | 7.26 |
| Knox County | Rockland | 2,345 | 32,876.90 | 10,823.62 | 9.40 |
| Madigan Memorial | Houlton | 2,034 | 17,736.48 | 9,453.39 | 4.07 |
| Maine General | Portland | 20,786 | 320,935.84 | 95,574.93 | 10.84 |
| Mercy | Portland | 1,362 | 26,440.40 | 8,624.01 | 9.57 |
| No. Maine General | Eagle Lake | 6,765 | 54,999.45 | 31,508.45 | 3.47 |
| Presque Isle General | Presque Isle | 1,159 | 15,611.73 | 5,343.23 | 8.86 |
| Rumford Community | Rumford | 2,639 | 33,726.42 | 12,221.65 | 9.15 |
| Scott-Webb | Hartland | 6,408 | 71,769.60 | 29,611.27 | 6.58 |
| Sisters | Waterville | 5,503 | 43,327.11 | 16,248.52 | 7.73 |
| St. Mary's | Lewiston | 6,446 | 71,550.60 | 29,834.94 | 6.67 |
| Thayer | Waterville | 1,439 | 19,786.25 | 6,710.24 | 9.07 |
| Waldo County General | Belfast | 1,697 | 22,790.71 | 7,702.57 | 8.89 |
| 31 Others | | 13,664 | 173,317.23 | 70,024.62 | 7.56 |
| TOTAL | | 124,912 | 1,585,113.28 | 583,953.62 | 8.07 |

NOTE - Of the total cost shown above, $115,793.42 was off that State Aided patients were able to pay. This leaves a net loss Maine Hospitals of $885,366.24, or $7.14 per day

Sign - Tear off on dotted line and mail - No Postage Needed

ALL of the people of the State of Maine should share in the cost of caring for charity hospital patients.

State Aid payments to Maine Hospitals should be made adequate for this purpose.

SIGNED

CITY OR TOWN

- PAID BY -

Pearl Fisher, President
Maine Hospital Association
Thayer Hospital
Waterville, Maine

FIRST CLASS PERMIT No 99 Sec 349 P.L. &R. WATERVILLE, ME

# EDITORIAL

## Christmas Seal Sale

The annual Christmas Seal Sale of the Maine Tuberculosis Association is now underway.

Formerly known as the Maine Public Health Association, this agency, long identified with the medical profession in the interest of better health for Maine people, is playing an active and constructive role in health affairs. Through public education, research and the demonstration of necessary ancillary medical activities, it has contributed much to the advances against disease which have been made in this state.

More than a tuberculosis association, this association and its affiliated groups have been and are interested in the general aspects of public health and preventative medicine.

A voluntary movement of lay citizens and professional people, with many Maine physicians participating through board membership on the state and local levels of action, the association is deserving of our interest and support.

We urge physicians not only to support the work of this organization through the purchase of Christmas Seals but also to participate in its affairs, or those of its affiliated groups, in the areas where they serve.

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# CORRESPONDENCE

### Veterans Administration Center

### Togus, Maine

TO: All doctors.

SUBJECT: Cortisone, ACTH and investigational drugs.

It is the policy of the Chief Medical Director, Veterans Administration Central Office, Washington, D. C., to limit the use of Cortisone and ACTH to those veterans with conditions that might benefit from the use of these drugs who are hospitalized in a Veterans Administration hospital. ACTH and Cortisone cannot be prescribed for VA beneficiaries at Government expense on an out-patient basis. The State Pharmaceutical Associations have been advised by Washington not to accept prescriptions for Cortisone and ACTH after November 15, 1950. A veteran who might benefit from the use of either of these drugs may be admitted to the hospital at Togus for this purpose.

Washington also advises that some fee-basis physicians are prescribing and using investigational drugs for the treatment of VA out-patient beneficiaries even though these drugs have not been made effective by the Food and Drug Administration. Until such time as these drugs are released to all doctors by the Food and Drug Administration their use cannot be authorized by the Veterans Administration for the treatment of VA beneficiaries.

Lorrimer M. Schmidt, M. D.,
*Chief, Out-Patient Division.*

## COUNTY SOCIETIES

**Androscoggin**
President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

**Aroostook**
President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

**Cumberland**
President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

**Franklin**
President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

**Hancock**
President, Lyman C. Burgess, M. D., Blue Hill
Secretary, Charles H. Knickerbocker, M. D., Bar Harbor

**Kennebec**
President, Allan C. Hurd, M. D., Gardiner
Secretary, Arch H. Morrell, M. D., Augusta

**Knox**
President, Paul A. Jones, M. D., Union
Secretary, Frank W. Kibbe, M. D., Rockland

**Lincoln-Sagadahoc**
President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

**Oxford**
President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

**Penobscot**
President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

**Piscataquis**
President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

**Somerset**
President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

**Waldo**
President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

**Washington**
President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

**York**
President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

# COUNTY SOCIETY NOTES

## Androscoggin

The October meeting of the Androscoggin County Medical Society was held on the 19th at St. Mary's General Hospital, Lewiston, with 20 members present.

Dr. Charles F. Branch, Dr. Paul G. Lemaitre and Dr. Ralph A. Goodwin, Jr., were elected to membership.

Dr. Clark F. Miller, Radiologist at the Central Maine General Hospital, presented a paper on the methods the radiologist uses for diagnoses of diseases of the colon. He presented their purpose and their value. The paper was followed by a question and answer period.

Dean Fisher, M. D.,
*Secretary.*

## Hancock

A regular meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, on November 8, 1950. There were fifteen members present.

The meeting was opened by Dr. Lyman C. Burgess. The minutes of the previous meeting were read and approved. Dr. Arthur M. Joost, Jr., of Bucksport, was elected to membership. Dr. Paul E. Black presented a report of the society's committee on Diabetes Detection week. A motion was made, seconded and carried that the society pay out of its treasury for blood sugar tests necessary for diagnosis of cases picked up by county physicians during Diabetes Detection week. A motion was made, seconded and carried that the society raise its annual membership dues from two to five dollars per member.

Dr. J. H. Hanson gave an instructive talk on the Radiological Aspects of Carcinoma of the Cervix, which was followed by discussion.

Charles H. Knickerbocker, M. D.,
*Secretary.*

## Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Elmwood Hotel, Waterville, October 19, 1950, at 7.00 P. M.

In the absence of the President, Vice President Edwin W. Harlow presided. The records of the May and September meetings were read and approved. Dr. Edward R. Loftus of Waterville, was elected to membership. A communication from the Council on Medical Service of the American Medical Association requesting that each component medical association appoint a committee on Hospital and Professional Relations, was read and it was moved, seconded and voted that Dr. Harlow name such a committee.

The speaker of the evening, Dr. Thomas J. Anglem of Boston, spoke on "Cancer of the Colon."

A. H. Morrell, M. D.,
*Secretary.*

## Lincoln - Sagadahoc

A meeting of the Lincoln-Sagadahoc Medical Society was held at The Ledges, Wiscasset, on Tuesday, November 14th, at 6.30 P. M. There were fifteen members present.

Dr. Johnson of the Pratt Clinic, Boston, spoke to the group on Anemias; their diagnosis and treatment and the use of Cortisone and ACTH in the Hemolytic anemias, rather than Splenectomy. His talk was very interesting.

Neil Parsons, M. D.,
*Secretary.*

## Piscataquis

A meeting of the Piscataquis County Medical Association was held at the Pleasant River Hotel, Brownville Junction, November 16. Preceding the meeting a social hour was enjoyed at the home of Dr. H. C. Bundy in Milo. A good steak dinner was served to nineteen members and guests.

Dr. Foster C. Small, President of the Maine Medical Association, spoke regarding Civilian Defense and Socialized Medicine.

Dr. Richard C. Wadsworth, Pathologist at the Eastern Maine General Hospital, Bangor, spoke regarding the Blood Bank, and answered many questions.

All members attending the meeting brought their check in payment of 1951 State and County dues, which is their usual habit.

N. H. Nickerson, M. D.,
*Secretary.*

## Washington

A meeting of the Washington County Medical Society and the Woman's Auxiliary was held November 14, 1950, in the Congregational Vestry, East Machias, Maine. There were nineteen members and three guests present. After an excellent dinner served by the Ladies' Union Society, Dr. Samuel R. Webber, President of the Washington County Society, introduced Dr. Foster C. Small, President of the Maine Medical Association. Dr. Small talked on various problems confronting the Maine Medical Association especially the need for a medical school in Maine. He also covered the Civil Defense program as set up for Maine and urged the formation of a county group to coöperate with the State group.

Mr. Herbert E. Locke, Esq., of Augusta, Legal Counsel of the Maine Medical Association, guest speaker of the evening, spoke on Medico-Legal Problems. Mr. Locke covered the field very well in a very able manner and illustrated his talk with various cases drawn from his experiences as legal counsel to the Association for over thirty years.

A short business meeting was held during which the Diabetes Detection program was brought up for discussion and it was reported that the Eastport and Calais hospitals were coöperating. The Civil Defense program was again brought up for discussion and it was agreed that a county program would be set up.

The following officers were elected for the coming year:

President, Herbert S. Everett, M. D., St. Stephen, N. B.

Vice President, James C. Bates, M. D., Eastport.

Secretary-Treasurer, Karl V. Larson, M. D., East Machias.

Board of Censors (for 3 years): E. B. Johnston, M. D., St. Stephen, N. B.

Delegate to Maine Medical Association: Norman E. Cobb, M. D., Calais. Alternates: Oscar F. Larson, M. D., Machias, and Robert MacBride, M. D., Lubec.

Robert O'Connor of Augusta, Associate of Mr. Locke, was present as a guest.

Karl V. Larson, M. D.,
*Secretary.*

## New Members

### Androscoggin

*Charles F. Branch, M. D.,* 300 Main Street, Lewiston.
*Ralph A. Goodwin, Jr., M. D.,* 33 Court Street, Auburn.
*Paul G. Lemaitre, M. D.,* 300 Main Street, Lewiston.

### Hancock

*Arthur M. Joost, Jr., M. D.,* Bucksport, Maine.

### Kennebec

*Edward R. Loftus, M. D.,* Waterville, Maine.

*Clinico-Pathological Exercise—Continued from page 467*

Microscopically there were a number of pathologic findings which might be attributed to the administration of nitrogen mustard. The appearance of the bronchogenic tumor has already been discussed. Many of the lymph nodes show no demonstrable germinal centers. This lack of follicular activity in the lymph nodes and spleen is frequently seen after mustard administration. Although the esophagus appeared quite normal grossly, histologically the squamous epithelium appeared unusually thick with a heaping up of epithelial cells, activation of nuclei and numerous mitotic figures, but with no evidence of penetration of the epithelial cells beneath the basement membrane. The epithelial cells of the adrenal cortex showed a marked paucity of vacuolization, a characteristic effect of nitrogen mustard. The bone marrow was moderately cellular with active granulopoiesis and erythropoiesis. Frequently an aplastic type of marrow is seen following the administration of nitrogen mustard.

The death of this patient can be attributed to multiple causes.

1. Bronchogenic carcinoma with multiple metastases.
2. Verrucous endocarditis of mitral valve with multiple emboli.
3. Thrombosis of right femoral and pelvic veins with multiple pulmonary emboli.

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## Constipation in the Postsurgical or Bedridden Patient

The combined effects of enforced inactivity, poor appetite and dietary restrictions frequently result in bowel sluggishness.

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

# *Proceedings*

## NINETY-SIXTH ANNUAL SESSION

## Maine Medical Association

## House of Delegates

### POLAND SPRING, MAINE

### June 18, 19, 20, 1950

(Continued from the November Issue of the JOURNAL, page 438)

CHAIRMAN SMALL: We come, now, to what I consider is the most important document before us for the afternoon's consideration. Yesterday, it was moved that the new Constitution and By-Laws be laid on the table until today, when it was to be considered. You have all had copies of the Constitution and By-Laws, and if any one hasn't one, please let us know. You will notice, as you look at this last copy that was sent to you, that there is an asterisk placed before some of the various paragraphs in the document; those are the ones that have not been changed from the previous copy; pardon me, but those are the ones that have been changed by suggestion or by the Committee.

At this time, I am going to ask Dr. Cobb to take over, and he is going to read only those that have had changes made in them, and as he reads them, if you, as Delegates, have any objections or any suggestions, please stop him.

After this has been completed, we will suspend the Rules and pass the document intact, as it is finally concluded by this assembly.

DR. STEPHEN A. COBB, Sanford: Before I start reading the changes, I want to give you gentlemen the names of the men who have worked on this Committee, for I think that they deserve a lot of thanks, which I, personally, want to give to them. And I want to give special, extra thanks to Forrest Ames, who, with his usual thoroughness, has finally gone over the thing, in order to pick up all the errors and flaws, and I want to give a certificate of merit to our Executive Secretary, Mayo Payson, who has spent hours and hours on this thing, in order to get it legally correct and in order to make the changes which would be for the betterment of the Association.

I went into this thing with a lot of radical ideas, and I want you to understand that on this committee, there was Forrest Ames, immediate Past President, your President, Ralph Goodwin, Ralph Stuart of Guilford, Eugene O'Donnell of Portland, and myself. They have been a fine anchor on some of my radical ideas. We have had some fine meetings, and some great discussions.

We have brought all of these changes before you twice at the House of Delegates' meetings, and there are only a few changes left today to discuss.

In Article I, Name of the Association, and Article II, Purposes, there are no changes.

The first change is in Article III, Component Societies, which reads as follows:

"Component societies shall be those county medical societies whose several constitutions and by-laws have been approved by this Association and such approval shall continue unless further amendments to the several constitutions and by-laws shall be in conflict with the provisions of the constitution and by-laws of this Association."

The next change is in Article VI, Council, which reads as follows:

"The Council shall consist of the President, President-Elect, Secretary-Treasurer of the Association, the immediate Past President, the delegate to the American Medical Association, and one Councilor from each Councilor District. Five members shall constitute a quorum."

Now, gentlemen, that means that there are practically eleven men on the Council, and I would like to amend that at this time, with your approval, to read, in the last sentence: "Seven members shall constitute a quorum."

I move that that change be made.

This motion was duly seconded and was carried.

DR. COBB: The next change is in Article VII, Sessions and Meetings, which reads as follows:

"Section 1. The Association shall hold an Annual Session, during which there shall be held scientific sessions, which shall be open to all registered members and guests. The time and place for holding such Annual Session shall be fixed by the Council.

"Section 2. The semi-annual meeting shall be held, when and if required, at a place and date to be set by the Council.

"Section 3. Special meetings of the Association may be called by the President, or by the Council, and shall be called by the President on petition of ten (10) members of the House of Delegates or fifty (50) members of the Association."

"Article VIII. Officers. The officers of this Association shall be a President, a President-Elect, a Secretary-Treasurer, and a Councilor from each Councilor District."

Next is Article IX. Funds and Expenses, as follows:

"Funds shall be raised by an equal per capita assessment on each member of each component society."

Next is Article X. Referendum.

"At the annual or semi-annual meeting of the Association, it may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates. The House of Delegates may, by a vote of its members, submit any question to the membership of the Association for its vote. A majority vote of all the members of the Association shall determine the question."

Next is Article XII. Amendments.

"The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any duly called meeting of said House of Delegates, provided that such amendment shall have been presented in open meeting at any previous meeting of the House of Delegates and that said amendment shall have been published in the JOURNAL of this Association, or a copy thereof sent to each member of this Association at least two months before the meeting at which final action is to be taken."

Now, we come to the By-Laws.

Chapter I. Membership.

"Section 1. Membership in this Association shall be only by membership in one of the component societies.

"Section 2. An active member of this Association shall be a person not less than twenty-one years of age and of good

character, who has received a license to practice medicine within the United States or its territories, who does not practice medicine in a manner contrary to the principles of medical ethics of the American Medical Association, and who does not practice or profess to practice sectarian medicine.

"Section 3. Junior members shall be chosen from doctors of medicine, who are citizens of the United States, engaged in filling residencies of intern appointments in recognized hospitals in Maine, and such membership shall end with termination of this status. Junior members shall have all the rights and privileges of active members except the right to vote and hold office. They shall be exempt from the payment of dues or assessments."

Section 4 remains the same.

"Section 5. Affiliate members may be elected by the House of Delegates from those who are members in good standing of this Association, upon recommendation of their respective county societies, when they have retired from active practice, or who have been physically disabled."

Your committee feels that the rest of this section after the words "physically disabled" should be deleted. We feel that it should be taken out of this section, and I would so move that it be done.

This motion was duly seconded and was carried.

Dr. Cobb: Sections 6, 7, 8 and 9 remain the same.

Chapter II, General Meetings, Sections 1, 2 and 3 remain the same.

Chapter II, General Meetings, Sections 1, 2 and 3 remain the same.

Chapter III. House of Delegates. Meetings.

"Section 1. The annual meeting of the House of Delegates shall be called by the Council and shall be held during the week of the Annual Session of the Association.

"Section 2. Special meetings of the House of Delegates may be called by the President, or by the Council, and shall be called by the President on petition of ten (10) members of the House of Delegates or fifty (50) members of the Association.

"Section 3. Twenty delegates shall constitute a quorum."

Sections 4 and 5 remain the same, in Chapter III.

Now, under "Duties" in Chapter III, Section 1 remains the same. Section 2 is as follows:

"Section 2. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

"Section 3. The House of Delegates shall consider the annual budget submitted to it by the Council and shall make such final determination thereof as it deems proper and necessary."

Sections 4, 5 and 6 remain the same.

Chapter IV. Election of Officers. Section 1 remains the same. Section 2 is as follows:

"Section 2. A President-Elect shall be elected annually. He shall serve as President-Elect until the Annual Session of the Association next ensuing after his election and shall become President upon his installation in the course of that Session, serving thereafter as President until the next Annual Session and the installation of his successor.

"Section 3. The terms of the Councilors shall be for three years.

"Section 4. The Secretary-Treasurer shall be elected by the Council.

"Section 5. The President-Elect shall appoint from the membership of the House of Delegates, at least sixty (60) days before the first day of the Annual Session, a Committee on Nominations consisting of one delegate from each Councilor District. Said committee shall meet at least one week prior to the first day of the Annual Session of the House of Delegates to consider nominees for the respective offices to be filled. Said committee shall present candidates for members of the Standing Committees where there is to be a vacancy, and for a delegate to the American Medical Association, if there is to be a vacancy in that office.

Section 6 remains the same.

"Section 7. Nominations for members of the Council for any District where there is a vacancy shall be made by a caucus of the members of the House of Delegates of that District. Each candidate for Councilor must be a resident of the District for which he is nominated."

Section 8 remains the same.

"Section 9. Any delegate may make further nomination for any office within the power of the House of Delegates to elect."

Section 10 remains the same.

With reference to Section 11, we finally decided that it was superfluous; it has been broken a number of times in the old Constitution. But we have left it in, as follows:

"Section 11. Delegates shall not be eligible for election to any of the offices named in the Constitution, except that of Councilor."

As I say, we felt that it was superfluous, but we await your action.

A Doctor: I move that Section 11 be deleted.

This motion was duly seconded and was carried.

Dr. Cobb: Next, we come to Chapter V. Council Meetings.

"Section 1. The Council shall meet at least once in two months throughout the year, and at such other times as it may be called by the Chairman of the Council, or upon petition of three (3) members of the Council. The Council shall meet on the day preceding the Annual Session, and daily during the Session. It shall have its annual meeting for the purpose of organizing and the election of a Chairman at its first meeting on the last day of the Annual Session of the House of Delegates."

Now, under Duties, Section 1 is as follows:

"Section 1. The Council shall carry out the mandates and policies of this Association as determined by the House of Delegates and shall have the power and authority to act for the House of Delegates between meetings of that body. It shall make an annual report to the House of Delegates on the first day of the Annual Session of said House of Delegates."

Executive Secretary Mayo Payson: Something from your old By-Laws was omitted, entirely by error, and not by the direction of the committee, giving the Council the power to appoint and fill vacancies in office, and I think that that should be retained, and if possible, I would like to have the authority to retain it, and insert it at about, well, before Section 2, and then renumber the chapter after that. It is a power that the Council seldom uses, but when it is necessary to use it, it is very vital.

Dr. Cobb: I move that we retain that section from the old By-Laws, as suggested by Mr. Payson.

This motion was duly seconded and was carried.

Dr. Cobb: Sections 2, 3, 4, 5, 6, remain the same.

Section 7, is as follows:

"Section 7. The salaries of all employees of the Association shall be fixed by the Council, and the salaries and duties of the Secretary and Executive Secretary shall be fixed by the Council.

"Section 8. The Council shall prepare and present to the House of Delegates for its consideration an annual budget providing for the necessary expenses of the Association. Such budget shall be prepared at least sixty (60) days before the opening of the Annual Session, and copies thereof shall be sent to the Secretary of each county society for distribution to the delegates, when elected."

Next, we come to Chapter VI. Duties of Officers.

Sections 1 and 2 remain the same.

Section 3 is as follows:

"Section 3. The Treasurer shall give a bond in the sum of

$2,000. He shall demand and receive all funds due the Association, together with bequests and donations. He shall pay money out of the Treasury only with the consent of the Council. He shall annually render an account of his doings and of the state of funds in his hands to the House of Delegates and submit his books to be audited by a committee of the Council."

Next is Chapter VII. Committees. Section 1, is as follows:

"Section 1. The Standing Committees of this Association shall be as follows:

A Committee on Scientific Work

A Committee on Legislation

A Medical Advisory Committee

A Committee on Medical Education and Hospitals

A Committee on Public Relations

A Rural Health Committee"

Now, following the words "Rural Health Committee" we decided to delete the next sentence, as follows:

"When not otherwise provided, they shall be elected by the House of Delegates upon nomination by the Nominating Committee."

Therefore, I move the deletion of that sentence.

This motion was duly seconded and was carried.

Dr. Cobb: Section 2 of Chapter VII is as follows:

"Section 2. The Committee on Scientific Work shall consist of three members, and shall determine the character and scope and provide the program for the scientific proceedings of this Association for each session, subject to the instructions of the House of Delegates. It shall submit its program to the Editor of the Journal for publication at least thirty (30) days prior to the date of the annual meeting.

"Section 3. The committee on Legislation shall consist of five members. All matters of professional interest to this Association which require action by the State Legislature shall be referred to and considered by this committee. It shall act as advisor to the Executive Secretary when he is engaged as Legislative Counsel and Agent for this Association."

Section 4 remains the same.

"Section 5. The Committee on Medical Education and Hospitals shall have referred to it all questions pertaining to hospital and physician relationship and medical education.

"Section 6. The Committee on Public Relations shall consist of five members which shall inquire into and pass upon such phases of public information as deal with the care of the sick, the practice of medicine, and the economics of medical care, both as relates to the doctors and to the patients. It shall endeavor to keep the people of Maine accurately and reliably informed concerning matters of public interest in the field of medical practice. It shall use its efforts to encourage cordial relations and understanding with the public press and radio."

Section 7 remains as it is now.

Chapter VIII, Dues and Assessments, Sections 1, 2 and 3, remain the same as they are now.

Chapter IX, remains as it is now.

Chapter X, Sections 1, 2, 3, 4, 5, 6 and 7 remain as they are now.

Section 8 reads as follows:

"Section 8. At the first meeting after the Annual Session of the Maine Medical Association, each component society shall elect one or more delegates and an equal number of individual alternates therefor to represent it in the House of Delegates of this Association, in accordance with Chapter III, Section 4 (Meetings) of these by-laws. The Secretary of each county society shall send a list of such delegates and alternates to the Secretary of this Association at least thirty days before the Annual Session. Representation in the House of Delegates shall be contingent on compliance with the foregoing provisions.

"Section 9. The Secretary of each county society shall keep a roster of its members and, if practicable, a list of non-affiliated physicians, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary by the Council. He shall send a copy of the program of each county meeting to his District Councilor, the Secretary, and to the Executive Secretary."

Dr. Belknap: In Section 8, there, where you are holding interim meetings, shouldn't the Secretary be required to be notified of the Delegates sooner than thirty days.

Dr. Ervin A. Center, Steep Falls: I move, in that connection, that an amendment be made to Section 8, to read that each County Society shall forthwith send a list of such delegates and alternates.

Dr. Belknap: The idea was that you are holding interim meetings. These require that the Secretary should be notified before the Annual Meeting. It should be before the interim meeting, or forthwith, or a reasonable time.

Dr. Center: Inasmuch as I understand the County Societies meet somewhat irregularly, the word "forthwith" is suggested, so that as soon as they are elected, they would be reported to the Secretary of the State Association.

Executive Secretary Payson: I can see that the language here is not correct. As soon as a delegate is elected, the County Society should notify Dr. Carter. It would be worded that the County Secretary will notify the State Secretary. So that the word "forthwith" should be substituted, the same as Dr. Center has suggested.

Dr. Center: Then I so move, that the word "forthwith" be substituted for the words "at least thirty days" in Section 6 of Chapter X.

This motion was duly seconded and was carried.

Dr. Cobb: Chapter XI. Secretaries' Meetings. This chapter remains the same.

Chapter XII, remains the same.

Chapter XIII. Section 1, is as follows:

"Section 1. These By-Laws may be amended at any Annual Session by a majority vote of the delegates present at that session if the proposed amendment has been submitted to the Council and has been published in the issue of the Journal published at least thirty (30) days preceding the annual meeting.

"Section 2. Upon the adoption of this Constitution and these By-Laws, all previous Constitutions and By-Laws inconsistent herewith are hereby repealed."

Chairman Small: You have heard the revised and up-to-the-minute Constitution and By-Laws read to you, with the various suggestions and corrections to be made, with the amendments suggested. The Chair at this time, if it is with your approval for the passage of this document, will entertain a motion to suspend the Rules and to proceed with the adoption of this document.

Dr. Forrest B. Ames, Bangor: May I ask one question? All the way through here, it speaks of the Maine Medical "Association." Suggestion has been made that we may change the name to "Society." Would that change the wording all through our document?

Executive Secretary Payson: If you decide to incorporate, you would adopt the motion to incorporate, and then adopt the new name, and have the new corporation adopt the by-laws similar to these, and any changes necessary to make the document read "Society" would be made..

Dr. Ames: As you go through this, then, would you change the word "Association" to the word "Society?"

Executive Secretary Payson: It would have to be done by the officers of the corporation, if you decide to have it.

Chairman Small: Are there any other questions?

Dr. Joseph E. Porter, Portland: I notice in Chapter I of the By-Laws, under Membership, Section 3, it states that the junior members shall be chosen and so on, "engaged in filling residencies or intern appointments in recognized hospitals in Maine," etc. I would like to know what is meant by recognized hospitals. It might clear up a difficulty at a later date, if that is straightened out now.

EXECUTIVE SECRETARY PAYSON: Wouldn't that have to be, Dr. Porter, hospitals approved for internships or residencies?

DR. PORTER: I would think so, but there might be hospitals not approved by the AMA.

EXECUTIVE SECRETARY PAYSON: Would they have residencies or internships?

DR. PORTER: They might.

DR. COBB: Would you want to change that?

DR. PORTER: I think it might be interns and residencies approved by the AMA for training But, then, some are recognized by the AMA and some are recognized by the College of Surgeons, too.

DR. COBB: I don't think there are any interns or residents at this time in the State that are not approved by the AMA.

DR. PORTER: There may be, and there have been.

CHAIRMAN SMALL: Of course, this can be amended as time goes on, if the question comes up about that.

DR. COBB: We might as well amend it now, so that it will be satisfactory.

DR. PORTER: I would say that it might be changed to "or intern appointments in hospitals recognized by the Council on Medical Education of the American Medical Association."

DR. PARKER: I would like to bring up a point here. Does everybody agree that they would want to disbar a qualified chap who chose to gain experience by serving in a hospital that was not accepted for interns by the AMA?

DR. COBB: That is the reason we didn't put it in.

DR. PARKER: There are a number of good, community hospitals that do have interns filling in a year, perhaps, and acquiring experience now, simply because he was working in a hospital that was not qualified by the AMA, that should not disqualify him.

DR. COBB: Mr. Chairman, we had this question come up, in Kennebec County; we left it right up to the County Societies to take care of it themselves and not get in too deep in this matter.

DR. C. HAROLD JAMESON, Rockland: It seems to me doubtful, if such a situation would arise very often, even in the future, that a young man would come into a hospital so small that it is not recognized, except as has been the case in our own small hospital in Rockland, where we have been sent, perhaps from some other hospitals of larger size, an intern or a resident for a short time; but, he is coming from an institution that is in the calibre that Dr. Porter recognizes, and it seems to me that he would be covered.

DR. P. L. B. EBBETT, Houlton: I was going to speak of the question that we had, when an intern temporarily was with us for a month. He was sent up by the Pratt Diagnostic Clinic. Now, they have stopped sending them, because they said those men weren't covered the way our laws were here in Maine, although they would be glad to send us another man to help us out for a month, and the men want to come on account of the education they get in rural training as well; but, they stopped it because they said they couldn't take care of the men if any malpractice case arose, because they couldn't be covered by insurance, and they had no right to practice in the State, and they couldn't accept them until something was done about it.

That would make a little hardship on the smaller hospitals, because we like to have the men come up.

I don't know that there is any way that you can cover it, is there?

DR. CHARLES W. KINGHORN, Kittery: I think that if you left it just as it is, then when the occasion arises, the Council or the House of Delegates can decide the particular question at hand.

CHAIRMAN SMALL: That was my idea.

DR. BELKNAP: Do you imply, when you mention "recognized hospitals in Maine" that they are necessarily recognized as hospitals approved for internships by the American Medical Association? What is a recognized hospital in Maine?

DR. HERBERT T. CLOUGH, Bangor: You can do this in two ways; we can add another sentence to that section and say: "A list of recognized hospitals in Maine shall be published annually by the Council."

Or, you can put in another sentence saying: "A recognized hospital is that hospital recognized by the AMA Council on Medical Education (or the American College of Surgeons)."

DR. PORTER: Regarding the legality of these men coming from other states and practicing here, I think it would be more important that these men be licensed to practice medicine than that they be a member of some county society. I think that it should be stated in here, too, that they should have a degree of M. D.

CHAIRMAN SMALL: If you have an amendment that would be acceptable to the delegates, would you put it in writing, so that we can get definite action?

DR. CENTER: Mr. Chairman, I am inclined to agree with Dr. Parker, that you want to be quite sure that we might not, sometime, by making this air-tight, prevent some one from being a good member of the Association. Today, we are getting an awful lot of regimentation, and I think a little bit of flexibility in the Constitution and By-Laws may not be a bad thing.

In fact, the word "recognized" is a loose term that might at sometime be of advantage. I don't think that it is a disadvantage at all.

We have our county societies electing the members of the group anyway.

EXECUTIVE SECRETARY PAYSON: May I suggest that it seems to me the whole discussion is whether or not you want to take in interns and residents from any recognized hospital, or whether you want to accept only those interns or residents from hospitals that are approved by the AMA. Isn't that the point, Gentlemen?

DR. PORTER: I am trying to clarify the term "recognized" and maybe I suggested something a little too stringent. I would be willing to go along with this, if you just take out the word "recognized." I move that the word "recognized" be deleted from this section.

This motion was duly seconded and was carried, with one dissenting vote.

DR. EUGENE E. O'DONNELL, Portland: There are two things in here that have come to my attention. One is Article III, on the first page, the last line, "shall be in conflict with the provisions of the Articles of Incorporation and By-laws of this Association."

EXECUTIVE SECRETARY PAYSON: Dr. O'Donnell has an old copy; it is all right in the new copy.

DR. O'DONNELL: In Chapter V of the By-laws, under the Duties of the Council, Section 2:

"The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide impartially all questions of discipline affecting the conduct of members of component societies, on which an appeal is taken from the decision of an individual Councilor. Its decision in all cases, including questions regarding membership in this Association, shall be final."

Now, this particular point raises the question of where the obligations and duties of the County societies end and where the duties and obligations of the State Association begin, and it would seem to me that the relationship between the county and state societies in the conduct of these matters should be very clearly stated, so that each would know its rights and obligations.

We haven't anything that is going to bother us right now. But, if you recall, recently in New Hampshire they had a serious problem there to decide. We may be faced with similar problems at any time. We want to be in a position, if such a thing does occur, to act promptly and correctly. And if I remember correctly, the decision in New Hampshire was made at the county society level.

It seems to me very fundamental, in a democratic process, that all the decisions that can possibly be made at the county society level should be so made.

I think that one thing we are in danger of in the Maine Medical Association is in developing a high degree of state organization at the expense of the county societies. If you commit murder in Cumberland, you are tried in Cumberland, and you are passed upon by a jury of Cumberland County people, in a Cumberland County Court; you are prosecuted by a Cumberland County attorney. It seems to me that we ought to be a little more clear on that point, and know where we, as individuals, stand, and know where the society stands and where the county and state society relationship begins and ends.

I would like to hear from some of the other delegates on this point.

Dr. Cobb: Mr. President, last year at Atlantic City, the delegates of the AMA asked that every State in the Association have a Grievance Committee. We spent hours with counsel and others, talking about the grievance committee, and at the advice of our attorney, Mr. Locke, and our Executive Secretary, we thought that we had better let this thing ride for the time being.

We have at the present time two cases that we know of in the State of Maine, where the county societies have men who either should be disbarred or should have their licenses revoked for the time being, and those county societies do not feel that they are the ones to take the step; that is, they don't want to feel that they are the prosecuting body. A grievance committee would handle all of that. But, we have gone along for the last fifteen or twenty years in our malpractice cases without having them publicized and put into the courts. They have been handled very well by Mr. Locke, our attorney, and he has expressed the wish that we wait for a while and see what the other states do, before we have a grievance committee. He is always at the beck and call of the Council, and the Council is the highest body of the Association. At the present time, if the county society has problems like this, and will refer them to the Council, they can try to straighten them out.

It was for that reason that we dropped the grievance committee out of the Constitution and By-Laws.

Dr. O'Donnell: It seems to me that if a county society has a man that should be put out of business, they are begging their own obligations, if they don't do something about it.

Dr. Cobb: Not to bring up any personal things, but we have a doctor in our county who belongs to the York County Society; he was not allowed to join the Cumberland County Society, and he is now down to our place. His credentials are bad. He was investigated by a board of censors, and we asked the Cumberland people to send somebody down and tell us their reasons. He is after us, now, he says he is ethical and an M. D. and has a right to belong to our society and why should we keep him out. But we couldn't get anybody from Cumberland to put a bee on him.

Dr. O'Donnell: Do you think that you would be any more likely to get to him at the State society level?

Dr. Cobb: Yes.

Dr. O'Donnell: This man would have to be there to answer any charges.

Dr. Cobb: Yes. But, in this case, Cumberland didn't want to send a man down to make a charge against this fellow. So that we had to take him. But, I think that a county society, if they don't want to handle the thing, has a right to go ahead and refer it to the Council.

Dr. O'Donnell: I think you are right, if they pass the responsibility to you. But, I think that it shouldn't go through the State first.

A Doctor: We had a similar case in our county about fifteen years ago, and our Secretary handled it in this way. We received a letter from the AMA, asking us why this man continued to be a member of our society, when his methods were unethical and he was condemned by everybody. We held a secret caucus, well, it wasn't really secret, but he never did attend our meetings. We decided not to send him a bill for his dues. He didn't pay them; so he ceased to continue to be a member by default.

Dr. Cobb: I think that it was the consensus of opinion of the committee that the county societies should wash their own dirty linen, and if they didn't want to do it, they could go to the Council.

Dr. Ames: Mr. Chairman, I think that Sections 2 and 3, taken together and analyzed, take care of the situation along the lines that Dr. O'Donnell has mentioned. Section 3 says that each Councilor shall be organizer, peacemaker and censor for his District. In other words, any matter can be handled on the county level and never go further. However, if an appeal is to be taken from the decision of the individual Councilor, then it goes to the State Council. It seems to me that the counties are protected. That was the attitude of our committee.

Dr. O'Donnell: That is probably the intention, but I don't think that it is clear enough.

Dr. Ames: It seems to me that it is covered there.

Dr. O'Donnell: I think that the section is slightly ambiguous and I would like to see it changed.

Chairman Small: Then, will you submit whatever change you wish to make, Doctor?

Dr. O'Donnell: Section 2. The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members referred to it by the proper authorities of the component county societies. I move that this change be made.

Dr. Franklin F. Ferguson, Portland: Mr. Chairman, I am not a delegate here, but I am a member of the State Society, and I want to say that I think that will eliminate the right of the State Association to pass on some member of the County which the county did not refer, and which the State Association considers to reflect upon the good name of the State Association.

Dr. O'Donnell: As I understand it, the State Association accepts the decisions of the county societies; that is the prerogative of each county society, to select is own members, and then the members of the county societies automatically become members of the State Association.

Dr. Clough: I will second Dr. O'Donnell's amendment.

Chairman Small: Is there any further discussion? If not, all those in favor of Dr. O'Donnell's motion will please signify by saying "aye." Those opposed?

There was a chorus of 'ayes" and the motion was carried, with two dissenting votes.

Chairman Small: Are there any other questions about the Constitution and By-Laws.

Dr. Clough: I move that the rules be suspended at this time, and that the Constitution and By-Laws, as amended and corrected, be adopted.

This motion was duly seconded, and was carried, unanimously.

Dr. Cobb: Mr. Chairman, I move that the Maine Medical Association change the form of its organization to that of a non-profit corporation, under the name of the Maine Medical Society, with the same membership, constituent societies, Districts, Officers, purposes and by-laws as now exist for the Association.

Dr. Center: I will second that motion.

Dr. O'Donnell: Are you opening up the question for discussion now?

Dr. Cobb: Let me read the rest of it. That the Officers of this Association do all things necessary and proper for the formation of such a non-profit corporation under the Revised Statutes.

Upon the formation of said corporation, the Officers of this Association, together with all the committees thereof, will become the Officers and Committees of said Corporation, and at a time deemed advisable by said Officers, the operation of the affairs of this Association be transferred to the Officers, Committees and members of the Corporation.

Upon direction so to do by the Officers of this Association, the Treasurer hereof, shall pay, assign and transfer to the said Corporation and the proper Officers thereof, all the assets,

accounts receivable, choses in action and all other and any rights of the said Association, and the Officers of said Corporation, by acceptance of the foregoing, shall agree thereby, that said Corporation, in consideration thereof, does undertake, assume and agree to pay all outstanding obligations of the said Association.

DR. O'DONNELL: I think that many of us here know very little about this business of incorporation and what it means. I am sure that I am confused about it, even after several meetings of the committee.

Now, what is it going to mean to us? What protection does it offer to us, and what, if any, disadvantages are there?

I think that probably Mr. Payson could help us on that. I know that there are one or two questions that I, personally, would like to ask.

Mayo, can you tell me this? Is the Maine Bar Association incorporated?

EXECUTIVE SECRETARY PAYSON: I don't know. I doubt that it is, because it does almost no business; it has a very small membership, and it has very little money.

DR. O'DONNELL: Is it true that lawyers, as a rule, do not incorporate, and that it is considered bad practice for lawyers to incorporate?

EXECUTIVE SECRETARY PAYSON: For their own business, as lawyers they do not incorporate, for the same reason that the doctors do not. It is a professional activity which cannot be performed by a corporation.

DR. O'DONNELL: Would we be in a bad position, and would we reduce our status by incorporating? Would we be in an unfavorable light?

EXECUTIVE SECRETARY PAYSON: Not by any means. The majority of the State Medical Societies are incorporated, some by special act.

As to the advantages or disadvantages, let me say that before I even brought this question up, I wrote to your general counsel, Herbert Locke, in whom I have the greatest confidence, and asked him what advantages there were in the Maine Medical Association incorporating, under the non-profit phase of it, and he said that there is every advantage, and there were absolutely no disadvantages. So that I can't do any more than that, if I were to talk for an hour.

CHAIRMAN SMALL: Are there any other questions?

QUESTION: Why did the name have to be changed from "Association" to "Society?"

EXECUTIVE SECRETARY PAYSON: The word "Association" implies a voluntary association, and the word "Society" implies a corporation, an organized organization. The word "Association" almost always means a voluntary association. Most of the state organizations have the word "Society" in their names.

DR. KINGHORN: Isn't the American Medical Association incorporated?

EXECUTIVE SECRETARY PAYSON: I don't know.

DR. CLYDE I. SWETT, Island Falls: There is no practical reason why we could not incorporate under our present name. I would be more in favor of having the name continue as the Maine Medical Association.

Therefore, I move that that amendment be made to the first motion by Dr. Cobb.

DR. CENTER: May I ask Mr. Payson a question. Is there anything in the non-profit clause in incorporating in the State of Maine, whereby the word "Maine" cannot be used in a corporation?

EXECUTIVE SECRETARY PAYSON: That is something that I had in mind. There is a statute which I want to look at on that proposition. As I recall the Statute, it is a charitable corporation that is referred to, and the Maine Medical Association is not a charitable corporation and is not so classified.

DR. O'DONNELL: One more question, Mr. Payson. As members of the corporation, would we be liable, in any way under the law?

EXECUTIVE SECRETARY PAYSON: As a matter of fact, by incorporating, you are getting out from under any individual responsibility which you might possibly have had, under the voluntary association. Your corporation entity alone has the responsibility, financial and otherwise, for the acts of the corporation. In your present Association I think your quasi-partnership would make each and every one of you individually responsible for the bills of the Association.

Perhaps this is an impossibility which I have in mind, but what about the liability that may occur in the JOURNAL? If you have a corporation running the JOURNAL, the corporation is responsible, whereas if you haven't a corporation, you gentlemen are responsible.

A MEMBER: I would like to ask Mr. Payson, in view of certain anti-trust suits that have been imposed upon medical societies in this country, is there any more likelihood that the Maine Medical Association might be sued on the anti-trust basis, as a corporation, rather than as a voluntary Association?

EXECUTIVE SECRETARY PAYSON: Well, in the present status of the law with reference to anti-trust and monopolies, I would say that no one knows the answer to the question of what is an anti-trust proposition. The general counsel of the AMA asked some of the men investigating what they were looking for and he said: "I'll be damned if I know; they're photographing everything."

But, it depends upon the particular Act in question. Recently, there was some pressure put on the hospitals by the AMA; I think it had reference to some of your specialties; but, at the next meeting of the AMA, they quickly rescinded the vote on that, because they didn't want to be caught in a monopoly or anti-trust proposition. So, it depends upon the act, and not on the form of the corporation.

DR BELKNAP: Wasn't that one of the reasons why they withdrew support of this thing, because it could have been an embarrassing legal position?

EXECUTIVE SECRETARY PAYSON: Not because of the form of the organization, but because of the nature of the Act, which was a pressure proposition.

CHAIRMAN SMALL: I believe Dr. Swett put a motion before the House. Will you please repeat it, Dr. Swett?

DR. SWETT: I move that the first motion, as read by Dr. Cobb, be amended to read "The Maine Medical Association" instead of the "Maine Medical Society."

This motion was duly seconded, and on a rising vote of 13 to 7, the motion was carried.

DR. COBB: The second motion reads: That the Officers of this Association do all things necessary and proper for the formation of such a non-profit corporation under the Revised Statutes C-50.

This motion was duly seconded and was carried.

DR. COBB: The next motion is: That upon the formation of said corporation, the Officers of this Association, together with all the Committees thereof, will become the Officers and Committees of said Corporation, and at a time deemed advisable by said Officers, the operation of the affairs of this Association be transferred to the Officers, Committees and members of the Corporation.

This motion was duly seconded and was carried.

DR. CENTER: On a point of order, Mr. Chairman, on the first motion made, the amendment that the word "Society" be changed to "Association" was voted upon, but no vote was taken on the adoption of the first motion, that the Maine Medical Association change the form of its organization to that of a non-profit corporation, with the same membership, constituent societies, Districts, Officers, purposes and by-laws as now exist for the Association.

CHAIRMAN SMALL: All those in favor of adoption of this motion will please signify by saying "aye." Those opposed?

There was a chorus of "ayes" and the motion was carried.

DR. COBB: The next motion is: Upon direction so to do, that is, that the operation of the affairs of this Association be transferred to the Officers, Committees and members of the corporation; upon direction so to do by the Officers of this Association, the Treasurer hereof, shall pay, assign and transfer to the said Corporation and the proper Officers thereof,

all the assets, accounts receivable, choses in action and all other and any rights of the said Association, and the Officers of said Corporation, by acceptance of the foregoing shall agree thereby, that said Corporation, in consideration thereof, does undertake, assume and agree to pay all outstanding obligations of the said Association.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: Are there any other questions pertaining to the Constitution and by-laws?

DR. ARCH MORRELL, Augusta: I would suggest that a copy of this be sent to all the members.

CHAIRMAN SMALL: Thank you very much. And I want to thank this Committee very much for their long and hard efforts in our behalf; I think that they have done a wonderful job, with so very little for us to do in the way of discussion in order to make it workable for all of us.

DR. CENTER: I know how much work is entailed on these committees, and especially this one, and therefore, I want to move that this House of Delegates express its thanks to this committee for an excellent job done.

This motion was duly seconded by many of the members present and was unanimousy carried.

CHAIRMAN SMALL: Before we adjourn, I want to state that all of the special committees that have been previously appointed by Dr. Goodwin during his term of office, will remain as is. They have begun to function, and it would be unwise for me to make any changes along these lines. However, there are two new names that I wish to add to two of the committees.

To the Tuberculosis Committee, I am going to add the name of Dr. George C. Howard of Guilford.

And to the Health Insurance Committee, I am going to add the name of Dr. Linus J. Stitham of Dover-Foxcroft.

Now Dr. Steele has done a wonderful piece of work, as you know on the Civilian Defense Committee. You have heard the remarks of your President today, relative to his work, and the recognition that has been given to him by other States, etc. Today, he told me that he thought he would have to be relieved of the duties of this committee. I insisted that he remain and he said he would, under one condition, that I would appoint a Deputy Chairman. I was glad to do this. We agreed upon Albert W. Moulton of Portland, as the Deputy Chairman, with Dr. Steele.

There is one other matter that we shall have to pass upon this afternoon, and that is the report of the Reference Committee, and I am now going to call upon Dr. Swett for that report.

DR. SWETT: We had two resolutions presented to the Committee that were to be sent to Senators Owen Brewster and Margaret Smith. Those were sent out by wire last evening.

The first one is as follows:

RESOLVED: That the Maine Medical Association, in convention assembled, urges that our Senators favor the resolve of Senator Cain of Washington for a re-study of the Social Security structure, and that further, it opposes any amendment to H.R. 6,000, adding the disability clause to its provisions.

The second one is as follows:

RESOLVED: That the Maine Medical Association, in convention assembled, does hereby express its opposition to Reorganization Plan No. 27, and urges that our Senators vote against said plan.

Your Reference Committee had presented to it a resolution from the Lincoln-Sagadahoc County Society, as follows:

RESOLVED: That the Legislative Committee prepare and present to the Legislature a resolve favoring a compulsory small-pox vaccination law.

The recommendation of the Committee is that this resolve be placed with the Legislative Committee for further study, and that they be empowered to act upon this resolve in accordance with their findings.

CHAIRMAN SMALL: You have heard the report of the Reference Committee, and resolution as presented by the Lincoln-Sagadahoc County Society. What is your pleasure?

DR. EBBETT: As Chairman of the Legislative Committee, I should like to have this meeting tell me how they feel about this matter, and whether or not they want such a law put through. I think that this should be a vote of the House, rather than to have it left to any committee. It is what the Association thinks, and not what the members of the Legislative Committee want.

DR. SWETT: May I give you the thinking of the Reference Committee on that? First, there is a sizeable organization in the State whose religious principles are opposed to a compulsory measure in regard to health. They should be considered. Secondly, the word "compulsory" seems to be a little out of line with our thinking when we are trying to have non-compulsory medical care, for it might, perhaps, cause a little bit of repercussion to this Society. Third, to date, we have had a very satisfactory functioning of our State Department of Health, as far as prevention is concerned, in our schools.

There have been only a few objections here and there, and, until we meet something of a major disaster, perhaps it would be just as well not to stir up too much trouble at this time.

For this reason, the recommendation was given, as I read it.

CHAIRMAN SMALL: Are there any other delegates who wish to discuss this matter?

DR. AMES: Mr. Chairman, I move that the report of the Reference Committee be accepted and that the House of Delegates approve the recommendations proposed by that Committee.

This motion was duly seconded, and was carried, unanimously.

DR. CENTER: While on the matter of resolutions, I have a resolution here that was handed to me by a member of the Cumberland County delegation, and which, in my opinion, should have been referred to the Committee on Resolutions; however, it came to our attention too late, and for that reason, I am going to present it to the House at this time, not that we are trying to by-pass your Committee, Dr. Swett, at all.

The following resolution is respectfully submitted to the

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House of Delegates of the Maine Medical Association for action.

WHEREAS, the practice of medicine in the State of Maine is limited, by law, to those individuals who have been properly licensed and registered so to practice, and

WHEREAS, the Committee on Hospitals and the Practice of Medicine of the American Medical Association concluded, after consideration of the newly revised Principles of Medical Ethics, that it is illegal, with few exceptions, and unethical for any lay corporation to furnish medical services for a professional fee which shall be so divided as to produce profit for a lay employer, either individual or institutional, including hospitals and medical schools, and

WHEREAS, the Principles of Medical Ethics are the concern of every practitioner of medicine and profesional specialties,

NOW, THEREFORE, BE IT RESOLVED, that the Maine Medical Association officially support the principles of the report of the Committee on Hospitals and the Practice of Medicine,

AND BE IT FURTHER RESOLVED: That the Maine delegate to the Annual Meeting of the American Medical Association in June, 1950, be instructed to continue his support of those principles.

Now, may I say that Dr. Foster is leaving tomorrow for the meeting of the American Medical Association, and he is heartily in accord with this resolution, and he would like to have this resolution passed, if proper, and given to him before he leaves.

It has to do with the so-called report and in case you are unfamiliar with this, as I certainly was until recently, let me say that this report of the AMA Committee on Hospitals and the Practice of Medicine was read by Thomas A. Foster to the House of Delegates of the AMA in June of 1949, and printed in the *Journal* of the AMA, Volume 140, page 795.

After consideration of the newly revised Principles of Medical Ethics of the AMA, the committee concluded that the overall policy of the AMA be that it is illegal, with few exceptions, and unethical for lay organizations practicing medicine to furnish medical service for a professional fee which shall be so divided as to produce profit for a lay employer, either individual or institutional, including hospitals and medical schools.

The report was adopted by the House of Delegates of the AMA.

At the interim session of the House in Washington, D. C., the report was reconsidered, at the request of the Board of Trustees, as they were informed by legal counsel that it might be illegal and interpreted as an attempt to unreasonably . . . coerce hospitals or physicians into the establishment of mutually satisfactory relations.

Instead of being rescinded, the report was referred back to the Committee.

Although our State delegate to the AMA has always approved the principles of the report, he has not received our approval on the record, on either the State or the County level. For that reason, he would like to have that approval from this House of Delegates.

I now move the adoption of this resolution.

This motion was duly seconded by Dr. Porter and was carried.

CHAIRMAN SMALL: Is there any further business to come before this meeting?

DR. SWETT: Mr. Chairman, I should like to bring a matter to the attention of the House of Delegates, in regard to our friendly relationships with our Canadian brethren.

In the past, I believe that we even had a joint meeting with them. Each year, we send delegates to medical societies in the other New England States. I think it would be very fine, if we were to ask these Canadian societies in Quebec and New Brunswick to receive our delegates, and to ask them, in turn, to send their delegates to our meetings.

We have several Canadian doctors who are members of our County and State Societies, and many of our Association




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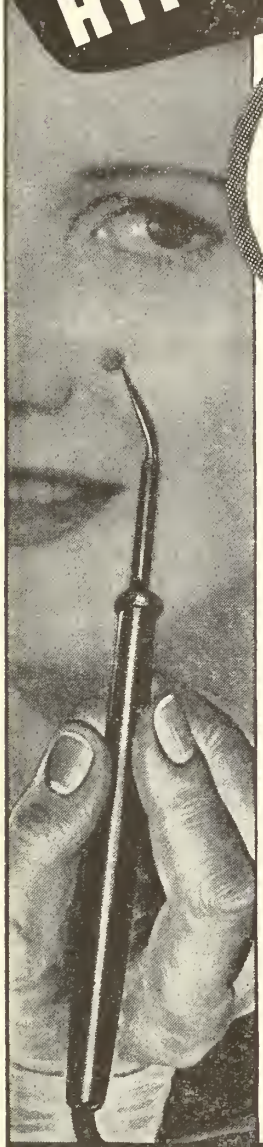
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members practice medicine across the border, back and forth, and I do feel that we have been a bit lax in our courtesy.

Therefore, I should like to make a motion before this House of Delegates that the President be instructed to appoint delegates to the Quebec and New Brunswick Medical Societies, and ask them, in turn, to send their delegates to our Annual Meeting.

This motion was duly seconded and was carried, unanimously.

DR. FRANCIS A. WINCHENBACH, Bath: Mr. Chairman, when I was absent, I understand that the House of Delegates elected me to the Council. For the good of the Society, I request that the House of Delegates allow me to withdraw, for personal reasons and previous commitments. I deem it a great honor, naturally; but I think that our back-room politics slipped up somewhere.

Dr. Belknap is a very able man in our group, a man with ability, talent, time and money — just the type of man you need on the Council. Therefore, I should like this House of Delegates to please consider withdrawing my name from the Council and I should like to nominate Dr. Robert Belknap to the Council from our Third District.

This motion was duly seconded and was carried.

CHAIRMAN SMALL: This has been a long session. But I am going to ask at this time if anybody has anything else to bring up, before the adjournment of this meeting?

On motion duly made and seconded, it was voted to adjourn.

(Whereupon, the Second Session of the House of Delegates was adjourned at 7.15 o'clock on June 19, 1950.)

## GENERAL ASSEMBLY

JUNE 19, 1950

*Election of President-Elect*

PRESIDENT GOODWIN: The next business on the agenda for this General Assembly is the election of the President-elect. I will await nominations from the floor.

DR. WESLEY N. WASGATT, Rockland: Mr. President, I should like to present to this body the name of Dr. C. Harold Jameson, the retiring Chairman of the Council, as a candidate for President-elect. Dr. Jameson has worked very hard for the Association for a good many years, more than he cares to have enumerated. He has worked on a good many committees. He has been a delegate from his own County, and he has also worked on the Editorial Board of the JOURNAL, trying to keep it alive.

DR. FORREST B. AMES, Bangor: I rise to second the nomination of Dr. Jameson as President-elect of the Maine Medical Association.

(Drs. O'Donnell, Carter, Ebbett, Kinghorn, Crowe, Belknap, Pratt and others also seconded the nomination of Dr. Jameson.)

PRESIDENT GOODWIN: Are there any further nominations from the floor? If not, it has been moved and seconded by many of the Delegates present that Dr. C. Harold Jameson of Rockland be nominated as President-elect of the Maine Medical Association. There are no opposition candidates. I await a motion as to how you will vote.

DR. WASGATT: I move that nominations cease and that the Secretary cast one ballot for the election of Dr. Jameson as President-elect of the Maine Medical Association.

This motion was duly seconded and was carried.

SECRETARY CARTER: I have cast the ballot.

PRESIDENT GOODWIN: I have received the ballot, as cast by our Secretary, and I hereby declare Dr. Jameson elected as President-elect of the Association.

At this time, Dr. Jameson, we should like to hear from you.

PRESIDENT-ELECT JAMESON: I want to thank you gentlemen for conferring this honor upon me, which I really very much appreciate. I face the term of my active Presidency with a sense of deep responsibility, because, as Ralph Goodwin said earlier, I am sure these next few years are going to be very telling ones in the history and in the progress of not only our State Society, but in medicine throughout this country, and I hope that I may do my part to further its progress.

Thank you very much, indeed.

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